

A REVISION OF THE WORLD SPECIES
OF *CHILO ZINCKEN*
(LEPIDOPTERA : PYRALIDAE)



BY
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A REVISION OF THE WORLD SPECIES OF *CHILO* ZINCKEN (LEPIDOPTERA : PYRALIDAE)

By S. BLESZYNSKI¹

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SYNOPSIS

A revision is given of the taxonomy and distribution of the 41 species of the World *Chilo*. Five new species are described. Eight names are newly placed in synonymy, one name is extracted from synonymy, two species are transferred from specific to sub-specific rank and two new combinations of species-groups are made. A key to the species of *Chilo* is given. The taxonomic characters and generic affinities of *Chilo* are discussed. The geographical distribution of the World species of *Chilo* is analysed. The biology and economic importance of *Chilo* are briefly discussed. A list of species removed from *Chilo* is given.

INTRODUCTION

IN 1961, 1963, 1964 and 1966 I was able to study and revise the *Chilo* collection at the British Museum (N.H.) as well as important material at the Naturhistorisches Museum, Vienna ; Muséum National d'Histoire Naturelle, Paris ; United States National Museum, Washington, D.C. ; American Museum of Natural History, New York, U.S.A. ; Canadian National Collection, Ottawa, Ontario, Canada ; Cornell University, Ithaca, N.Y., U.S.A. ; Zoologische Sammlung d. Bayerischen Staates, Munich ; Museum A. Koenig, Bonn ; Zoologitscheskij Institut Akademii Nauk SSSR, Leningrad ; Institut de Recherches Agronomiques et des Cultures Vivrières, Paris ; Musée Royal de l'Afrique Centrale, Tervuren ; Muzeul Grigorie Antipa, Bucharest ; Commonwealth Institute of Biological Control, Kampala, Uganda ; as well as from the collection of Dr H. G. Amsel, Karlsruhe. In addition some types have been lent to me from the Institute für Spezielle Zoologie, Berlin ; Museum van Natuurlijke Historie, Leiden ; Naturhistoriska Riksmuseet, Stockholm ; and Division of Entomology of the Commonwealth Scientific and Industrial Research Organisation, Canberra, Australia. Dr H. Inoue, Fujisawa, Japan, has

¹ We regret to record that Dr. Bleszynski died as a result of a car accident in Germany on the 24th December, 1969, shortly after submitting this paper for publication.

kindly made and sent me the microphotographs of the genitalia of the holotype of *Chilo izuensis* Okano.

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The photographic work was done by the author, except for the photographs made on the white background, which were done in the Photographic Section of the British Museum (Natural History) under the supervision of Mr M. G. Sawyers.

All text-figures were drawn by the author.

BM(NH) is an abbreviation of British Museum (Natural History), and GS-SB is an abbreviation of genitalia slide made by Stanislaw Bleszynski.

GENERIC SYNONYMY

The genus *Chilo* was erected by Zincken in 1817, for a heterogeneous cluster of species from which Duponchel, 1836, selected *Tinea phragmitella* Hbn. as the type-species. Only one of the remaining originally included species (*plejadellus* Zck.) is now considered congeneric with the type-species. Subsequently described genera, *Proceras* Bojer, *Borer* Guenée, *Diphryx* Grote, *Hypiasta* Hmps., *Nephalia* Turner, *Silveria* Dyar and *Chilotraea* Kapur are considered by the present author as junior synonyms of *Chilo*. *Proceras*, erected for one species, *sacchariphagus* from Mauritius, was for some time included in the synonyms of *Diatraea* Guilding, but was removed from synonymy by Tams, 1942. *Borer* was established for *saccharellus*, and was treated by Tams, 1942 as a synonym of *Proceras*. In fact *saccharellus* is a junior synonym of *sacchariphagus*. Until 1966, *Proceras* was considered as a distinct genus because of the reduction of the ocelli and a good deal of detail on this subject was published by Kapur, 1950. However, in 1966, the present author synonymized *Proceras* with *Chilo* on the basis of a study of the World species of this genus. *Diphryx* Grote, erected for one species *prolatella*, from Georgia, U.S.A., proved to be the same as *Chilo* and *prolatella* synonymous with *plejadellus*. *Nephalia*, described for *crispimetalla* from Australia, was sunk under *Chilo* in 1966 by the present author. *Hypiasta*, established for one species, *argyrogramma* from Kenya, was synonymized with *Chilo* in 1965 by the present author. *Silveria* was erected for two species,

hexhex and *adelphilia* from Mexico. Dyar selected *hexhex* as the type-species of *Silveria*. Subsequently, both species proved to be synonymous with *Chilo chiriquitensis* (Z.), and consequently the genus *Silveria* a junior synonym of *Chilo* (Bleszynski, 1962a : 108, 1967 : 92). In 1950, Kapur split the genus *Chilo* into two genera, *Chilo* and *Chilotraea*, based on the differences in the structure of face and in fore wing venation. However, I regard *Chilotraea* as a synonym of *Chilo* (Bleszynski, 1962b : 1).

The interpretation of the genus *Chilo* has for a long time been confused, chiefly because the taxonomy has been based on the wing venation. Dyar & Heinrich, 1927, in their revision of the American species of the genus *Diatraea* and allies, based on the genitalia of both sexes, write : ' The genitalia of the Crambinae offer excellent characters for the separation of species and to some extent (especially in the males) of genera. The generic characters, however, are more in habitus than definable structural differences ; and are further obscured by the fact that in the genus *Chilo* most of the types of the other allied genera are repeated.' This opinion was quite without foundation. In fact, *Chilo* and *Diatraea* represent two of the best defined genera, on the genitalic characters, within the subfamily Crambinae. Dyar & Heinrich did not fully understand the genus *Chilo*. They put one species, *idalis* Fernald into two genera ; the female they diagnosed as *Diatraenopsis idalis* (Fernald), and the male of *idalis* they described as a new species *Chilo fernaldalis* (in fact *idalis* is a junior synonym of *Chilo demotellus* Walk.), based on the difference in the size of the ocelli, which, in fact, are variable in *idalis* (Klots, i. l.). The genus *Diatraenopsis* Dyar and Heinrich (sunk under *Epina* Walk. by Kapur, 1950) is very different from *Chilo*, as shown by the genitalia of both sexes.

The first good definition of *Chilo* was given by Kapur, 1950, but he split this genus into two genera as mentioned above. A preliminary paper on *Chilo* was published in 1962 by the present author, who transferred to *Chilo* several Ethiopian species from the genera *Argyria* Hbn. and *Diatraea* Guild. I dealt with the Palaearctic species of *Chilo* in *Microlepidoptera Palaearctica*, 1965. A discussion of the *Chilo*-complex of genera can be found in Bleszynski, 1966 : 477.

GENERIC AFFINITIES AND TAXONOMIC CHARACTERS

Chilo is very close to the American genus *Diatraea* Guild. The external appearance and general structure of the male and female genitalia are similar in both genera. *Diatraea* is restricted to North and South America, but is poorly represented in North America. *Chilo* has only four representatives in North America, and only one of these, *chiriquitensis* is found also in Central America. All the species of *Diatraea* are without ocelli, many species have well differentiated uncus (which is little modified in *Chilo*), peculiar lobes on the tegumen (absent in *Chilo*), tufts of hair on the second abdominal segment and on the hind tibia in males. Such tufts never occur in *Chilo* species. It seems that *Diatraea* is an American derivative of *Chilo* and that all the above mentioned characters of *Diatraea* are probably secondary features. It is of interest to note also that the metallic scales so often found on the fore wing in *Chilo* never occur in *Diatraea*.

The most important characters distinguishing the *Chilo*-complex from the closely

allied *Acigona*-complex are : the presence of a saccus and pseudosaccus, the rather simple structure of the valva, the lack of a bridge linking the ostial pouch with the eighth tergite in the females and the undilated posterior apophyses.

Other genera of *Chilo*-complex are : *Leonardo* Blesz., *Zacatecas* Blesz., *Chilandruss* Blesz., *Myelobia* H.-S., *Chiqua* Blesz., *Malgasochilo* Blesz., *Epina* Walk. and *Japonichilo* Okano. All these genera are characterized by presence of a saccus and pseudosaccus, similar structure of the male and female genitalia, and a triple frenulum in the female. *Leonardo* (Pl. 2, fig. 3), is separated from *Chilo* by the position of M_1 in the hind wing which arises from the lower angle of cell somewhat similar to *Prionapteryx* Steph. and allies. The position of *Zacatecas* is not clear as only the female of the single species *ankasokellus* Viette is known. This species is characterized by R_2 in the fore wing which is stalked with R_3 , R_4 and R_5 . R_5 is always free in *Chilo*. *Chilandruss* (Pl. 4, fig. 18) is distinct from *Chilo* by the structure of the female genitalia which are peculiar in having papillae anales transformed into a triangular organ adapted to cutting the stems of the food plant. Moreover, the apex of gnathos in *Chilandruss* is rounded, being always pointed in *Chilo*. The genus *Myelobia* is restricted to the Neotropical Region. The external appearance of *Myelobia* species often resembles that of the Sphingidae. In many respects the genitalia of the species of *Myelobia* are very much like those in *Chilo* and *Diatraea* but they differ in having a very peculiarly shaped uncus. In the female genitalia the ostial pouch is usually not demarcated from the ductus bursae. The latter forms with corpus bursae an elongate bag.

The systematic position of the next two genera, viz. *Chiqua* and *Malgasochilo* is queer. *Chiqua* contains one species distributed in Peru and Bolivia. It has fully developed ocelli, convex, but rounded face, small chaetosemata, wing neuration similar to that in *Chilo* ; the hind wing pecten is peculiar as, instead of hairs, there are very long broad scales, and an additional row of such scales on the vein 1 *A* ; in the male genitalia the valva is much broader than in *Chilo* and *Diatraea*.

Malgasochilo is known only by a single male from Madagascar. Ocelli are absent, chaetosemata reduced, face not protruding beyond eye ; R_2 in the fore wing is stalked with R_3 and R_4 ; the lower part of the cell in the hind wing is long, but the upper part is much shorter than in *Chilo*. In the genitalia, the gnathos is broader than in *Chilo*, otherwise the genitalia resemble those in *Diatraea*. In general, *Malgasochilo* in the genitalia has more *Diatraea* than *Chilo* resemblance.

Eschata is an Oriental genus characterized by reduced chaetosemata, presence of ocelli, wing neuration similar to that in *Chilo*, strong pars basalis and often numerous cornuti ; female genitalia are somewhat similar to those in *Myelobia* ; externally the species of *Eschata* are very distinct by the snow-white coloration of the fore wing and two distinct transverse fasciae.

Epina is a small American genus and *Japonichilo* is represented by one east Asiatic species ; both are similar to each other being characterized by very strong pars basalis in the male genitalia.

Ocellus in most of *Chilo* species is well developed ; chaetosemata are moderate, labial palpus porrect, usually at least three times as long as the diameter of an eye, in male shorter than female ; face round or conical, sometimes with a strong ventral

ridge formed by clypeus ; antenna in male serrate ; frenulum in female triple ; in fore wing R_1 free, approximate to or coincident with Sc , R_2 always free, R_3 and R_4 always stalked, R_5 always free ; M_1 present ; in hind wing cell closed, M_1 from upper angle of cell, M_2 present ; fore wing in most species yellow or brown, in many species with metallic scales ; discal dot often present ; median dot absent in most species ; subterminal line present in most species, median line present or absent ; no longitudinal light stripe.

Male genitalia of *Chilo* : Uncus short and stout, sharply pointed ; gnathos as long as uncus ; uncus and gnathos do not offer specific characters ; valva rather simple, often with slight pars basalis (a process at base of costa) ; sacculus without process ; vinculum greatly elongate ; saccus and pseudosaccus well developed ; aedeagus greatly elongate with or without cornuti ; often with bulbous basal projection and ventral arm ; juxta-plate in most species with long arms, sometimes asymmetrical.

Female genitalia of *Chilo* : Papillae anales broad with ends coalescent with each other ; posterior apophyses slender ; membrane linking eighth to seventh segment without spikes ; anterior apophyses present ; seventh sternum often with heavily sclerotized plate ; ostial pouch linked to eighth segment by a membrane ; signum present or absent, in some species two signa.

Very good specific characters are offered by the shape of the face, the presence or absence of metallic scales on the fore wing, the shape of the arms of the juxta-plate and of the aedeagus, the presence or absence of the bulbous basal projection and ventral arms of the aedeagus, size of the cornuti, presence or absence of a signum and the shape of the ostial pouch ; the heavily sclerotized plate of the seventh sternum in the female often offers good specific characters, but in some species it varies considerably.

The shape of the face is a relatively constant character in most species of *Chilo*. However, *orichalcociliellus* Strand shows face variable ; it may be slightly or strongly conical, with or without a sharp point. It is interesting that the very closely allied *aleniellus* Strand and *thyrsis* Blesz. always seem to have a rounded face without a trace of a point. A few Palearctic species have a strongly conical and pointed face plus a ventral ridge. Such a ridge occurs in many species of the genus *Acigona* Hbn., but rarely in *Chilo*. The ridge may be triangular or semi-circular, but it may vary slightly in its shape in one species. As mentioned above, Kapur erected a genus *Chilotraea* characterized by rounded face and R_1 coincident with Sc in the fore wing. However, both characters have only specific value in *Chilo*. The position of R_1 may vary within an individual species. Moreover, several species, i.e. *pulverosellus*, *agamemnon*, *ceylonicus* have the face rounded as in *Chilo*, *sensu* Kapur and R_1 in the fore wing free as in *Chilotraea*.

The presence of metallic scales in the fore wing is one of the best characters in distinguishing species of *Chilo*. However, it should be noted that some specimens bear only a small number of metallic scales, e.g. *pulveratus* Wileman & South or *crpsimetallus* Turner.

The shape and armature of the arms of the juxta-plate are also good taxonomic characters, but are variable in some species, particularly in *orichalcociliellus*. It is

worth noting that an incorrect preparation of a genitalic slide often distorts arms of the juxta-plate and may make determination difficult.

The number and size of cornuti seem to be constant except in *sacchariphagus* and its subspecies.

The presence, shape and number of signa is constant except in species which have a weakly developed signum, for example *auricicilius* Dudgeon.

GEOGRAPHICAL DISTRIBUTION

Most species of *Chilo* are represented in the Ethiopian and Oriental Regions. Only one species, *chiriquitensis* Z. is confined to the Neotropical Region, four are confined to the Nearctic Region. The Palaearctic Region has 13 species, but five of them represent the Oriental element in the Palaearctic fauna, and one species, *agamemnon* Blesz. invaded the Near East from East Africa. The Oriental Region is inhabited by 14 species of *Chilo*. The Australian Region has only three species, *terrenellus* Pag., *lousiadalis* Hmps. and *crypsimetallus*. *C. terrenellus* and *lousiadalis* are also known from Vulcan Island. The present centre of distribution of *Chilo*, however, is the Ethiopian Region where are found 18 species, one of which, *partellus*, may be of Oriental origin. It is known from East Africa and the Comores.

The distribution of some species may have been affected by the fact that they are notorious pests of rice, sugar-cane, maize, sorghum and other graminaceous crops, so that artificial introductions may play a role in the geographical distribution of *suppressalis* Walk., *partellus* Swinhoe, *infuscatellus*, and particularly *sacchariphagus*. The latter is widely distributed in India, China, Formosa, Malaya, Indonesia, the Philippines, but is known also from Madagascar, Reunion and Mauritius. The population occurring in Madagascar, Reunion and Mauritius is very similar to the form from Indonesia and the Philippines. So far there is no record of this species from the African continent. In recent times *agamemnon* spread from central to northern Israel. This species seems to be of Ethiopian origin with subsequent invasion (or artificial introduction) to Middle East. *C. suppressalis*, an Oriental species, with intrusion to the south-east of the Palaearctic Region, is found in rice fields in Spain and in Hawaii.

BIOLOGY AND ECONOMIC IMPORTANCE

The larvae of all *Chilo* are stem-borers. The females lay from 200 to 300 eggs on the surface of the host-plant. Copulation generally occurs at night. Eggs are often laid a few hours after copulation. The eggs develop within 4-8 days. The larva bores in the stalk, and is fully developed within about 2-3 weeks. Depending on the species and climatic conditions there are one to six generations a year. In Central Europe, there is only one generation of *phragmitellus*. Rivnay (1967 : 15) writes about *agamemnon* in Israel : 'The offspring of the September moths enter diapause in the larval stage ; some of these constitute the sixth generation, which is in hibernation. The percentage of diapausing larvae is low at the beginning of September and increases until October, except when extraordinary temperature conditions prevail.' Gupta (1904 : 796) states that the larvae of *infuscatellus* are very active, often dispersing themselves on their silken threads from plant to

plant. The larvae eat into the centre of the plant, causing the characteristic 'dead-heart' appearance. Later the larvae bore into the stems between the nodes. Gupta also states that the larval moult takes about one hour and that the number of moults varies, increasing to 7 or 8 in larvae which had hibernated. The pupal period varies from 10–12 days in February but is reduced to 6–8 days in summer. The adults emerge in the early morning, generally before sunrise.

Several *Chilo* species are known as notorious pests of graminaceous crops : for example, *sacchariphagus*, *partellus*, *tumidicostalis*, *auricilius* and *infuscatellus* are pests of sugar-cane in Southern and Eastern Asia and Eastern Africa. Rice is mostly attacked by *supressalis* and *partellus*, but also by *agamemnon*. *C. agamemnon*, *zacconius*, *diffusilineus*, *partellus* and *orichalcociliellus* are known to attack maize. For details the reader is referred to the very extensive literature on the biology and control of *Chilo*. The detailed bibliography of the *Chilo* literature was published by Katiyar (1964).

SPECIES DESCRIBED IN *CHILO* WHICH HAVE BEEN TRANSFERRED TO OTHER GENERA

- Chilo acuminatus* Butler, 1878 (referable to Plutellidae).
Chilo aditellus Walker, 1864 (referable to Schoenobiinae).
Chilo aeneociliella Eversmann, 1844 (referable to *Agriphila* Hbn.).
Chilo aglaopis Turner, 1911 (referable to *Neargyrioides* Blesz.).
Chilo albimarginalis Hampson, 1919 (referable to *Acigona* Hbn.).
Chilo alfoldellus Schaus, 1922 (referable to *Acigona obliquilineella* Hampson).
Chilo ambiguellus Snellen, 1890 (referable to Schoenobiinae).
Chilo angustipennis Zeller, 1877 (referable to *Orocrambus* Purdie).
Chilo aracalis Schaus, 1934 (referable to *Acigona* Hbn.).
Chilo araealis Hampson, 1912 (referable to *Acigona* Hbn.). **comb. n.**
Chilo argentifascia Hampson, 1919 (referable to *Corynophora* Berg).
Chilo argentosus Snellen, 1893 (referable to *Hemiptocha* Dognin).
Chilo argyrostola Hampson, 1919 (referable to *Argyria* Hbn.).
Chilo ascriptalis Hampson, 1919 (referable to *Acigona* Hbn.).
Chilo aureliellus Fischer v. Roesslerstamm, 1841 (referable to *Calamotropha* Z.).
Chilo aurescellus Fischer v. Roesslerstamm, 1841 (mis-spelling of *aureliellus*).
Chilo bivittellus Moore, 1872 (referable to *Charltona* Swinhoe).
Chilo bostralis Hampson, 1919 (referable to Pyraustinae, *Pyrausta* Schrank).
Chilo calamistis Hampson, 1919 (referable to *Acigona* Hbn.).
Chilo carnifex Coquerel, 1855 (referable to Phycitinae, *Metoecis* Mabille).
Chilo centrellus Möschler, 1883 (referable to *Diatraea* Guild.).
Chilo ceres Butler, 1883 (referable to *Thopeutis respersalis* Hbn.).
Chilo cervinellus Moore, 1872 (referable to *Charltona* Swinhoe).
Chilo chabilalis Schaus, 1834 (referable to *Acigona* Hbn.).
Chilo chillanicus Butler, 1883 (referable to *Fernandocrambus* Aurivillius).
Chilo chrysographellus Kollar, 1844 (referable to *Ancylolomia* Hbn.).
Chilo comparellus Felder and Rogenhofer, 1875 (referable to *Acigona infusella* Walk.).

- Chilo crambidoides* Grote, 1880 (referable to *Diatraea* Guild.).
Chilo culmicolellus Zeller, 1863 (referable to *Diatraea lineolata* (Walk.).
Chilo cuneellus Treitschke, 1835 (referable to *Catoptria pyramidella* (Tr.)).
Chilo cynedradellus Schaus, 1922 (referable to *Acigona* Hbn.).
Chilo densellus Zeller, 1881 (referable to *Acigona* Hbn.). **comb. n.**
Chilo diffusifascia Hampson, 1919 (referable to *Thopeutis* Hbn.).
Chilo diletantellus Dyar, 1912 (referable to *Acigona* Hbn.).
Chilo discellus Walker, 1867 (referable to *Calamotropha* Z.).
Chilo dodatellus Walker, 1864 (referable to Schoenobiinae, *Schoenobius* Dup.).
Chilo duomita Dyar, 1912 (referable to *Acigona* Hbn.).
Chilo excerptalis Walker, 1863 (referable to Schoenobiinae, *Apurima* Walk.).
Chilo eximiellus Zincken, 1821 (referable to *Cervicrambus* Blesz.).
Chilo forbesellus Fernald, 1896 (referable to *Thopeutis* Hbn.).
Chilo funerellus Hampson, 1896 (referable to Schoenobiinae, *Schoenobius* Dup.).
Chilo furcatellus Zetterstedt, 1840 (referable to *Catoptria* Hbn.).
Chilo fuscicilia Hampson, 1910 (referable to *Acigona* Hbn.). **comb. n.**
Chilo fuscidentalis Hampson, 1896 (referable to Pyraustinae).
Chilo gildasellus Schaus, 1924 (referable to Schoenobiinae, *Schoenobius* Dup.).
Chilo gratiosellus Walker, 1864 (referable to Schoenobiinae, synonym of *Schoenobius incertulas* Walker).
Chilo griseoradians J. de Joannis, 1930 (referable to *Acigona steniella* Hmps.).
Chilo hederalis Amsel, 1935 (referable to *Thopeutis galleriella* (Rag.).
Chilo heracleus Zeller, 1877 (referable to Schoenobiinae, *Erupa* Walk.). **comb. n.**
Chilo hypenalis Rebel, 1910 (referable to *Pseudobissetia terrestrella* (Christ.).
Chilo ignitalis Hampson, 1896 (referable to *Acigona infusella* (Walk.).
Chilo incanellus Hampson, 1896 (referable to *Myelobia* H.-S.).
Chilo incertellus Zincken, 1821 (referable to *Mesolia* Rag.).
Chilo incertulas Walker, 1863 (referable to Schoenobiinae, *Schoenobius* Dup.).
Chilo inconspicuellus Moore, 1872 (referable to *Charltona* Swinhoe).
Chilo infusellus Walker, 1863 (referable to *Acigona* Hbn.).
Chilo ingloriellus Möschler, 1882 (referable to Schoenobiinae, *Schoenobius* Dup.).
Chilo interlineatus Zeller, 1881 (referable to *Acigona* Hbn.).
Chilo interruptellus Moore, 1872 (referable to *Charltona* Swinhoe).
Chilo irrectellus Möschler, 1882 (referable to *Pseudometachilo* Blesz.).
Chilo lativittalis Dognin, 1910 (referable to *Diatraea* Guild.).
Chilo latmiadelis Dognin, 1923 (referable to *Diatraea lativittalis* (Dognin).
Chilo lathoniellus Zincken, 1817 (referable to *Crambus nemorellus* (Hbn.).
Chilo leachellus Zincken, 1818 (referable to *Crambus* F.).
Chilo leptigrammalis Hampson, 1919 (referable to *Acigona* Hbn.).
Chilo leptogrammellus Meyrick, 1879 (referable to *Calamotropha* Z.).
Chilo leucanialis Butler, 1877 (referable to *Orocrambus* Purdie).
Chilo leucocraspsis Hampson, 1919 (referable to *Acigona* Hbn.).
Chilo locupletellus Kollar, 1844 (referable to *Ancylolomia* Hbn.).
Chilo loftini Dyar, 1917 (referable to *Acigona* Hbn.).
Chilo maculalis Predota, 1934 (referable to *Thopeutis galleriella* (Rag.).

- Chilo majorellus* Costa, 1836 (referable to Phycitinae, synonym of *Etiella zinckenella* Treitschke).
- Chilo marcella* Schaus, 1913 (referable to *Acigona* Hbn.).
- Chilo matanzalis* Schaus, 1922 (referable to *Epina dichromella* Walk.).
- Chilo mercurellus* Zetterstedt, 1840 (referable to Scopariinae, *Scoparia* Curt.).
- Chilo mesostrigalis* Hampson, 1919 (referable to *Calamotropha* Z.).
- Chilo morbidellus* Dyar, 1913 (referable to *Acigona* Hbn.).
- Chilo multipunctellus* Kearfott, 1908 (referable to *Acigona* Hbn.).
- Chilo neuricellus* Zeller, 1863 (referable to *Diatraea lineolata* (Walk.).
- Chilo nigristigmellus* Hampson, 1896 (referable to *Myelobia* H.-S.).
- Chilo nivellus* Kollar, 1844 (referable to *Crambus* F.).
- Chilo obliquilineellus* Hampson, 1896 (referable to *Acigona* Hbn.).
- Chilo oblitteratellus* Zeller, 1863 (referable to *Diatraea saccharalis* (F.).
- Chilo obtusellus* Stainton, 1856 (referable to *Calamotropha paludella* (Hbn.).
- Chilo ocellellus* Zetterstedt (referable to *Crambus alienellus* (Germar & Kaulfuss)).
- Chilo opinionellus* Dyar, 1917 (referable to *Acigona* Hbn.).
- Chilo ortellus* Swinhoe, 1886 (referable to *Charltona* Swinhoe).
- Chilo oxyprora* Turner, 1904 (referable to *Nechilo* Blesz.).
- Chilo parramattellus* Meyrick, 1879 (referable to *Calamotropha paludella* (Hbn.)).
- Chilo pauperellus* Treitschke, 1832 (referable to *Catoptria* Hbn.).
- Chilo phlebitalis* Hampson, 1919 (referable to *Acigona* Hbn.).
- Chilo poliellus* Treitschke, 1832 (referable to *Agriphila* Hbn.).
- Chilo porrectellus* Walker (referable to Plutellidae, *Plutella* Schrank).
- Chilo powelli* D. Lucas, 1862 (referable to *Ancylolomia disparella* (Hbn.)).
- Chilo praefectellus* Zincken, 1821 (referable to *Crambus* F.).
- Chilo prophylactes* Meyrick, 1934 (referable to *Acigona* Hbn.). **comb. n.**
- Chilo puritellus* Kearfott, 1908 (referable to *Acigona* Hbn.). **comb. n.**
- Chilo purpurealis* Hampson, 1896 (referable to *Acigona infusella* (Walk.)).
- Chilo pyramidellus* Treitschke, 1832 (referable to *Catoptria* Hbn.).
- Chilo pyrocaustalis* Hampson, 1919 (referable to *Acigona ignefusalis* (Hmps.)). **comb. n.**
- Chilo rabatellus* D. Lucas, 1939 (referable to *Ancylolomia inornata* Stgr.).
- Chilo repugnatalis* Walker, 1863 (referable to Schoenobiinae, *Apurima* Walk.).
- Chilo rufulalis* Hampson, 1919 (referable to *Acigona* Hbn.). **comb. n.**
- Chilo semivittalis* Dognin, 1907 (referable to *Acigona* Hbn.).
- Chilo simplex* Butler, 1877 (referable to *Orocrambus* Purdie).
- Chilo sordidellus* Zincken, 1821 (referable to Schoenobiinae).
- Chilo spectabilis* Felder & Rogenhofer, 1875 (referable to *Myelobia zeuzeroides* (Walk.)).
- Chilo spurcatellus* Walker (referable to Schoenobiinae, *Schoenobius* (Dup.)).
- Chilo squamulellus* Zeller, 1881 (referable to *Acigona* Hbn.). **comb. n.**
- Chilo steniellus* Hampson, 1899 (referable to *Acigona* Hbn.).
- Chilo stenziellus* Treitschke, 1835 (referable to *Catoptria conchella* (D. & Schiff.)).
- Chilo strigatellus* Hampson, 1919 (referable to *Acigona* Hbn.). **comb. n.**
- Chilo strigellus* Treitschke, 1833 (referable to *Acigona cicatricella* (Hbn.)).

- Chilo submedianalis* Hampson, 1919 (referable to *Thopentis galleriella* (Rag.)).
Chilo surinamellus Möschler, 1822 (referable to *Acigona infusella* (Walk.)).
Chilo terrestrellus Christoph, 1885 (referable to *Pseudobissetia* Blesz.).
Chilo teterrellus Zincken, 1821 (referable to *Pediasia* Hbn.).
Chilo torpidellus Zeller, 1852 (referable to *Calamotropha* Z.).
Chilo truncatellus Schaus, 1922 (referable to *Acigona leucocraspis* (Hmps.)).
Chilo truncatellus Zetterstedt, 1840 (referable to *Pediasia* Hbn.).
Chilo trypetes Bisset, 1939 (referable to *Acigona steniella* (Hmps.)).
Chilo unicolorellus Zeller, 1863 (referable to *Calamotropha* Z.).
Chilo venatella Schaus, 1922 (referable to *Argyria* Hbn.).
Chilo verellus Zincken, 1817 (referable to *Catoptria* Hbn.).
Chilo vinosellus Hampson, 1896 (referable to Schoenobiinae, *Schoenobius* Dup.).
Chilo virgatus Felder & Rogenhofer, 1875 (referable to Schoenobiinae, *Erupa* Walk.).
Chilo xylinalis Hampson, 1896 (referable to *Thopentis* Hbn.).

SPECIES OF *CHILO* UNRECOGNIZED

- C. batri* (Fletcher), 1928 : 59 (described in *Diatraea* Guild.). Type-locality : India, Bihar. Type : not traced.
C. cinnamomellus Berg, 1875 : 88. Type-locality : Patagonia. Type : location unknown.
C. ikri (Fletcher), 1928 : 60, pl. 7, fig. 2, pl. 8, fig. 2, pl. 9, fig. 1 (described in *Diatraea* Guild.). Type-locality : India, Bihar. Type : not traced.
C. kanra (Fletcher), 1928 : 59, pl. 5, fig. 1, pl. 6, fig. 1 (described in *Diatraea* Guild.). Type-locality : India. Type : not traced.
C. recalvus Wallengren, 1876 : 126. Type-locality : Transvaal. Type : location unknown.
C. saccharicola Fletcher, 1928 : 59, pl. 6, fig. 2. Type-locality : India. Type : not traced.
C. spatiosellus Möschler, 1882 : 436, pl. 18, fig. 41. Type-locality : Surinam. Type : lost.

CHILO Zincken

- Chilo* Zincken, 1817 : 23. Type-species : [*Tinea*] *phragmitella* Hübner, [1805] [Selected by Duponchel, 1836 : 9].
Proceras Bojer, 1856 : (not paginated). Type-species : *Proceras sacchariphagus* Bojer, 1856, by monotypy [Syn. Bleszynski, 1966 : 477].
Borer Guenée in Maillard, 1862. Type-species : *Borer saccharellus* Guenée, 1862, by monotypy [Syn. Tams, 1942 : 67].
Diphryx Grote, 1822 : 273. Type-species : *Diphryx prolatella* Grote, 1882, by monotypy [Syn. Hampson, 1896a : 954].
Chilo Zincken ; Fernald, 1896 : 77.
Chilo Zincken ; Hampson, 1896a : 954 [In part].
Nephalia Turner, 1911 : 113. Type-species : *Nephalia crypsimetalla* Turner, 1911, by monotypy [Syn. Bleszynski, 1966 : 478].
Hypiesta Hampson, 1919 : 538. Type-species : *Hypiesta argyrogramma* Hampson, 1919, by monotypy [Syn. Bleszynski, 1966 : 478].

- Silveria* Dyar, 1925 : 10. Type-species : *Silveria hexhex* Dyar, 1925, by original designation [Syn. Bleszynski, 1962b : 108].
Diatraenopsis Dyar & Heinrich, 1927 : 39 [In part].
Silveria Dyar ; Dyar & Heinrich, 1927 : 31.
Proceras Bojer ; Tams, 1942 : 67.
Chilo Zincken ; Kapur, 1950 : 394.
Proceras Bojer ; Kapur, 1950 : 410.
Chilotraea Kapur, 1950 : 402. Type-species : *Chilo infuscatellus* Snellen, 1890, by original designation [Syn. Bleszynski, 1962a : 1].
Chilo Zincken ; Okano, 1950 : 122.
Chilo Zincken ; Bleszynski, 1962b : 98.
Chilo Zincken ; Bleszynski, 1965 : 102.
Proceras Bojer ; Bleszynski, 1965 : 122.
Chilo Zincken ; Bleszynski, 1966 : 478.
Chilo Zincken ; Bleszynski, 1969 : 12.

KEY FOR THE IDENTIFICATION OF SPECIES

1	In fore wing R_1 free	2
—	In fore wing R_1 coincident with Sc	36
2 (1)	Face conical with distinct point	3
—	Face rounded without point	23
3 (2)	Face with distinct ventral ridge	4
—	Face with vestigial ridge or ventral ridge absent	15
4 (3)	♂	5
—	♀	10
5 (4)	Aedeagus with ventral arm	6
—	Aedeagus without ventral arm	9
6 (5)	Costa of valva with strong median projection	15
—	Costa of valva without distinct median projection	7
7 (6)	Arms of juxta-plate not swollen	8
—	Arms of juxta-plate distinctly swollen (Text-fig. 18)	<i>suppressalis</i> (p. 120)
8 (7)	Juxta-plate as in Text-fig. 19	<i>hyrax</i> (p. 122)
—	Juxta-plate as in Text-fig. 23	<i>christophi</i> (p. 124)
9 (5)	Arms of juxta-plate distinctly unequal in length (Text-fig. 13)	<i>phragmitellus</i> (p. 114)
—	Arms of juxta-plate almost equal in length (Text-fig. 14)	<i>luteellus</i> (p. 116)
10 (4)	Signum absent (except of area of scobinations)	11
—	Signum present	12
11 (10)	Ductus bursae with distinct swelling (Text-fig. 16)	<i>luteellus</i> (p. 116)
—	Ductus bursae without distinct swelling (Text-fig. 15)	<i>phragmitellus</i> (p. 114)
12 (10)	Signum elongate	13
—	Signum lamellate, rectangular or almost rectangular	15
13 (12)	Ductus bursae twisted at ostial pouch	14
—	Ductus bursae not twisted at ostial pouch	15
14 (13)	Ostial pouch large (Text-fig. 21)	<i>christophi</i> (p. 124)
—	Ostial pouch small, slightly demarcated (Text-fig. 17)	<i>suppressalis</i> (p. 120)
15 (6)	Fore wing with at least a few metallic scales	<i>erianthalis</i> (p. 176)
—	Fore wing without metallic scales	16
16 (15)	Fore wing with small discal dot, or discal dot absent	17
—	Fore wing with very distinct, large discal dot. ♂ unknown	<i>tamsi</i> (p. 128)
17 (16)	♂	18
—	♀	21

18 (17)	Aedeagus with bulbose basal projection	19
—	Aedeagus without bulbose basal projection	<i>tumidicostalis</i> (p. 134)
19 (18)	Costa with strong median projection (Text-fig. 26)	<i>partellus</i> (p. 126)
—	Costa without strong median projection	20
20 (19)	Arms of juxta-plate very long, ventral arm of aedeagus very long (Text-fig. 24). ♀ unknown	<i>vergilius</i> (p. 119)
—	Arms of juxta-plate moderately long, ventral arm of aedeagus rather short (Text-fig. 108)	<i>demotellus</i> (p. 172)
21 (17)	Signum present (Text-fig. 28)	<i>partellus</i> (p. 126)
—	Signum absent	22
22 (21)	Indian species. Genitalia as in Text-fig. 36	<i>tumidicostalis</i> (p. 134)
—	North American species. Genitalia as in Text-fig. 110	<i>demotellus</i> (p. 172)
23 (2)	Fore wing with at least a few metallic scales	24
—	Fore wing without metallic scales	29
24 (23)	♂	25
—	♀	27
25 (24)	Aedeagus with ventral arm	26
—	Aedeagus without ventral arm (Text-fig. 37)	<i>ceylonicus</i> (p. 138)
26 (25)	Aedeagus with cornuti; juxta-plate with median long projection (Text-fig. 72). Ethiopian species	<i>mesoplagalalis</i> (p. 156)
—	Aedeagus without cornuti; juxta-plate without median projection (Text-fig. 109). North American species	<i>plejadellus</i> (p. 174)
27 (24)	Signum much elongate (Text-fig. 111)	<i>plejadellus</i> (p. 174)
—	Signum not elongate	28
28 (27)	Oriental species. Costa of fore wing not edged with brown. Genitalia as in Text-fig. 41	<i>ceylonicus</i> (p. 138)
—	Ethiopian species. Costa of fore wing distinctly darkened with brown. Genitalia as in Text-fig. 78	<i>mesoplagalalis</i> (p. 156)
29 (23)	Face slightly conical	<i>tumidicostalis</i> (p. 172)
—	Face rounded	30
30 (29)	♂	31
—	♀	34
31 (30)	Cornuti in aedeagus absent (Text-fig. 25)	<i>pulverosellus</i> (p. 124)
—	Cornuti in aedeagus present	32
32 (31)	Aedeagus with bulbose basal projection (Text-fig. 55)	<i>agamemnon</i> (p. 145)
—	Aedeagus without bulbose basal projection	33
33 (32)	Arms of juxta-plate almost equal in length (Text-fig. 66)	<i>luniferalis</i> (p. 152)
—	Arms of juxta-plate distinctly not equal in length, right arm much longer than valva (Text-fig. 67)	<i>perfusalis</i> (p. 155)
34 (30)	Ductus bursae with projection near ostial pouch (Text-fig. 55)	<i>agamemnon</i> (p. 145)
—	Ductus bursae without projection near ostial pouch	35
35 (34)	Ductus bursae entirely lightly sclerotized (Text-fig. 22)	<i>pulverosellus</i> (p. 124)
—	Ductus bursae partly heavily sclerotized (Text-figs 68–71)	<i>luniferalis</i> (p. 152) & <i>perfusalis</i> (p. 155)
36 (1)	Fore wing with metallic scales	37
—	Fore wing without metallic scales	63
37 (36)	Neotropical species. Genitalia as in Text-figs 114–118	<i>chiriquitensis</i> (p. 178)
—	Old World species	38
38 (37)	Oriental and Australian species	39
—	Ethiopian species	51
39 (38)	♂	40
—	♀	45
40 (39)	Juxta-plate symmetrical	41
—	Juxta-plate asymmetrical	25

41 (40)	Aedeagus with ventral arm	42
-	Aedeagus without ventral arm	44
42 (41)	Ventral arm of aedeagus notched	43
-	Ventral arm of aedeagus without notch (Text-fig. 31) <i>pulveratus</i> (p. 132)	
43 (42)	Pars basalis absent ; notch of juxta-plate small (Text-fig. 38) <i>auricilius</i> (p. 135)	
-	Pars basalis present ; notch of juxta-plate very deep (Text-fig. 46) <i>polychrysus</i> (p. 140)	
44 (41)	Arms of juxta-plate long ; cornuti absent (Text-fig. 33) <i>bandra</i> (p. 133)	
-	Arms of juxta-plate very short ; cornuti present (Text-fig. 39) <i>crypsimetallus</i> (p. 138)	
45 (39)	Signum present	46
-	Signum absent	48
46 (45)	One signum	47
-	Two signa (Text-fig. 34) <i>pulveratus</i> (p. 132)	
47 (46)	Signum very distinct, lamellate (Text-figs 40-42) <i>ceylonicus</i> (p. 138)	
-	Signum weak	48
48 (45)	Genitalia as in Text-fig. 35 <i>bandra</i> (p. 133)	
-	Genitalia as in Text-figs 43-45 and 52	49
49 (48)	Genitalia as in Text-fig. 43. Signum present or absent <i>auricilius</i> (p. 135)	
-	Genitalia as in Text-figs 44, 45 and 52. Signum absent	50
50 (49)	Genitalia as in Text-figs 44, 45 <i>crypsimetallus</i> (p. 138)	
-	Genitalia as in Text-fig. 52 <i>polychrysus</i> (p. 140)	
51 (38)	♂	52
-	♀	57
52 (51)	Cornuti very distinct, medium-sized (Text-figs 72, 74, 80, 81)	53
-	Cornuti small (Text-figs 85-90, 94-96)	55
53 (52)	Aedeagus with bulbous basal projection (Text-fig. 74) <i>argyrogrammus</i> (p. 158)	
-	Aedeagus without bulbous basal projection	54
54 (53)	Ventral arm of aedeagus very short (Text-fig. 72) <i>costifusalis</i> (p. 155)	
-	Ventral arm of aedeagus very long (Text-figs 80-81) <i>argyropastus</i> (p. 159)	
55 (52)	Valva broad, slightly tapering (Text-figs 85-87) <i>orichalcociliellus</i> (p. 162)	
-	Valva distinctly tapering caudad (Text-figs 88-90, 94-96)	56
56 (57)	Arms of juxta-plate equal in length, or right arm at most three-quarters of length of left arm (Text-figs 88-90) <i>aleniellus</i> (p. 165)	
-	Right arm of juxta-plate much shorter than left arm (Text-figs 94-96) <i>thyrsis</i> (p. 167) & <i>quirimbellus</i> (p. 170)	
57 (51)	One signum	58
-	Two signa (Text-figs 75-77) <i>costifusalis</i> (p. 155)	
58 (57)	Ductus bursae very short (Text-figs 82, 83)	59
-	Ductus bursae very long (Text-figs 91-93, 97-99)	60
59 (58)	Signum rounded (Text-fig. 82) <i>argyropastus</i> (p. 159)	
-	Signum elongate, with slight median ridge (Text-fig. 83) <i>argyrogrammus</i> (p. 158)	
60 (58)	Seventh sternum with short spined plate and two almost triangular spined patches (Text-figs 91, 100) <i>orichalcociliellus</i> (p. 162)	
-	Triangular spined patches absent	61
61 (60)	Ostial pouch with two distinct, heavily sclerotized rings (Text-figs 98, 107) <i>quirimbellus</i> (p. 170)	
-	Ostial pouch with only one heavily sclerotized ring (Text-figs 92, 93, 97, 99, 101-106)	62
62 (61)	Ostial opening very small (Text-figs 92, 93, 101, 102) <i>aleniellus</i> (p. 165)	
-	Ostial opening large (Text-figs 97, 99, 103-105) <i>thyrsis</i> (p. 167) & <i>zoriandellus</i> (Text-fig. 106 (p. 170)	

63	(36)	Ocellus reduced	<i>sacchariphagus</i> (p. 181)
—		Ocellus well developed	64
64	(63)	♂	65
—		♀	73
65	(64)	Aedeagus with one big cornutus (Text-fig. 27)	<i>infuscatellus</i> (p. 129)
—		Aedeagus without big cornutus	66
66	(65)	Aedeagus with ventral arm	67
—		Aedeagus without ventral arm	72
67	(66)	Ventral arm of aedeagus very short	68
—		Ventral arm of aedeagus long	69
68	(67)	Arms of juxta-plate equal in length, very thin (Text-fig. 79)	<i>mercatorius</i> (p. 158)
—		Arms of juxta-plate not equal in length (Text-fig. 56)	<i>diffusilineus</i> (p. 147)
69	(67)	Ventral arm of aedeagus broad with very deep notch	70
—		Ventral arm of aedeagus narrow, without notch	71
70	(69)	Basal margin of main part of ventral arm of aedeagus almost perpendicular to stem of ventral arm (Text-figs 50, 51). Fore wing without distinct, light, longitudinal lines	<i>terrenellus</i> (p. 145)
—		Basal part of main part of ventral arm of aedeagus distinctly oblique (Text-figs 48, 49). Fore wing with several light, longitudinal lines (Pl. 2, fig. 2)	<i>louisadalis</i> (p. 142)
71	(69)	Ventral arm of aedeagus very long (Text-fig. 65)	<i>psammathis</i> (p. 151)
—		Ventral arm of aedeagus rather short	43
72	(66)	Pars basalis present ; arm of juxta-plate short (Text-fig. 39)	<i>crypsimetallus</i> (p. 138)
—		Pars basalis absent ; arms of juxta-plate very long (Text-fig. 57)	<i>zacconius</i> (p. 149)
73	(64)	Signum present	74
—		Signum absent	76
74	(73)	One signum	75
—		Two signa	<i>pulveratus</i> (p. 132)
75	(74)	Ostial pouch distinctly incised (Text-fig. 30)	<i>infuscatellus</i> (p. 129)
—		Ostial pouch not incised (Text-fig. 77)	<i>psammathis</i> (p. 151)
76	(75)	Ostial pouch with heavily sclerotized projection in ductus bursae (Text-figs 59, 60, 61)	<i>diffusilineus</i> (p. 147)
—		Ostial pouch without heavily sclerotized projection into ductus bursae	77
77	(76)	Ostial pouch with lightly sclerotized projection (Text-fig. 62)	<i>zacconius</i> (p. 149)
—		Ostial pouch without lightly sclerotized projection	78
78	(77)	Ostial pouch very distinctly demarcated (Text-fig. 63)	<i>incertus</i> (p. 150)
—		Ostial pouch not distinctly demarcated	79
79	(78)	Termen of fore wing distinctly oblique	<i>crypsimetallus</i> (p. 138)
—		Termen of fore wing slightly oblique	80
80	(79)	Fore wing with several light, longitudinal lines (Pl. 4, fig. 4)	<i>louisadalis</i> (p. 142)
—		Fore wing without longitudinal light lines (Pl. 4, fig. 3)	<i>terrenellus</i> (p. 145)

Chilo phragmitellus (Hübner)

(Pl. 3, figs 1, 2 ; Text-figs 1, 2, 13, 15)

[*Tinea*] *phragmitella* Hübner, [1805], pl. 43, figs 297, 298.

Palparia rhombea Haworth, [1811] : 483.

Chilo phragmitellus (Hübner) Zincken, 1817 : 36.

Topeutis [sic] *phragmitalis* (Hübner) Hübner, [1825] : 366 [unjustified emendation].

Chilo gigantellus (Denis & Schiffermüller) Stephens, 1834 : 332 [mis-identification].

Chilo gigantellus (Denis & Schiffermüller) ; Wood, 1839 : 220, fig. 1527 [mis-identification].

Chilo phragmitellus (Hübner) ; Wood, 1839 : 220, fig. 1526.

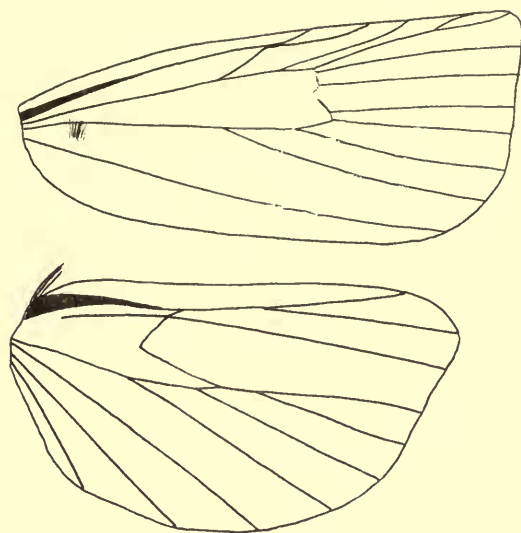
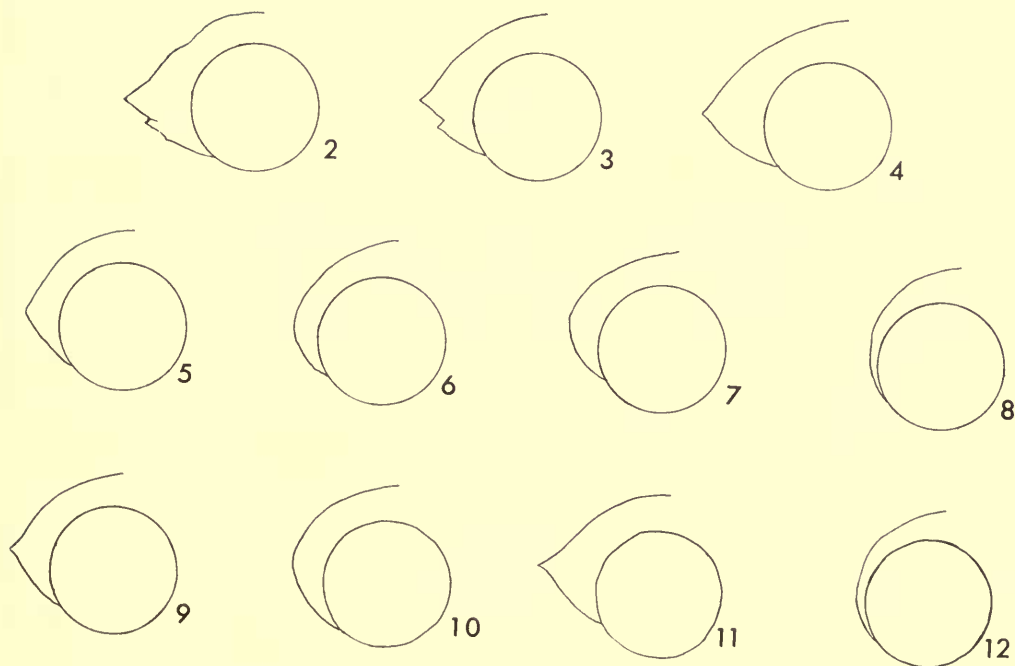


FIG. 1. *Chilo phragmitellus*. Wing venation.



FIGS 2-12. *Chilo*, faces. 2, *phragmitellus*. 3, *suppressalis*. 4, *partellus*. 5, *tumidicostalis*. 6, *infuscatellus*. 7, *pulveratus*. 8, *agamemnon*. 9, *orichalcociliellus*. 10, *alenellus*. 11, *plejadellus*. 12, *sacchariphagus*.

Chilo phragmitellus (Hübner) ; Okano, 1962 : 125, pl. 15, fig. 4 [♂ genitalia].

Chilo phragmitellus (Hübner) ; Bleszynski, 1965 : 104, figs 55-1 [wing venation], 55-2 [head], 55-3, 4, 5, 6 [larva], 55-7, 8 [face], pl. 4, figs 55-1, 2 [imago], pl. 41, fig. 55 [♂ genitalia], pl. 93, fig. 55 [♀ genitalia].

Ocellus well developed. Face strongly conical with distinct point and strong ventral ridge (Text-fig. 2). Labial palpus 4.5 (♂) to 5.5 (♀) times as long as diameter of eye. Fore wing : length 12.0-22.0 mm, ♂ generally smaller than ♀ : R_1 free ; ground colour dull, varying from straw-yellow to dark brown, in some instance with an ochreous hue ; variably dusted with dark scales over basal and dorsal areas ; transverse lines absent ; metallic scales absent discal dot in most specimens distinct. Hind wing grey or beige in ♂ and silky white or white in ♀.

f. *intermediellus* Raebel, 1925 : 100. Specimens with brown fore wing.

f. *nigricellus* Raebel, 1925 : 100. Fore wing unicolorous very dark brown. Both forms described from Germany.

♂ genitalia (Text-fig. 13) : valva without pars basalis ; arms of juxta-plate asymmetrical, the left one much shorter than right, each provided with subapical tooth ; aedeagus without ventral arm or bulbous basal projection.

♀ genitalia (Text-fig. 15) : ostial pouch not demarcated from ductus bursae ; the latter with caudal one-third heavily sclerotized, smooth middle portion moderately sclerotized ; proximal one-third lightly sclerotized ; signum absent.

The larva feeds from September to June on *Phragmites communis* and *Glyceria aquatica*. For details on biology the reader is referred to Sorhagen, 1886 : 34, Reutti, 1898 : 158, Spuler, 1910 : 197, Schütze, 1931 : 21, Heinrich, 1925 : 159, Raebel, 1925 : 100. The chaetotaxy of the larva was figured by Hasenfuss, 1960 : 156, fig. 164. The adults are on the wing in Europe from June to August.

Distribution. North, Central and South Europe ; Ukraine ; Near East ; Central Asia ; Prov. Shantung, China ; Hokkaido, Japan. So far I have not seen any specimen from Spain or Portugal. The range of *phragmitellus* partly overlaps that of *luteellus*.

C. phragmitellus is similar to *luteellus* but is easily separable by the absence of the metallic lustrous scales present on the fore wing in *luteellus*. The genitalia of the two species show very good specific characters : in *luteellus* the arms of the juxta-plate are equally long, but are unequal in *phragmitellus* ; in the female genitalia of *luteellus* the ductus bursae has a distinct swelling lacking in *phragmitellus*.

Type-material of *phragmitellus* is lost.

Type material examined. *Rhombea*. LECTOTYPE ♂ (present designation). '*rhombea*', England, in BM(NH).

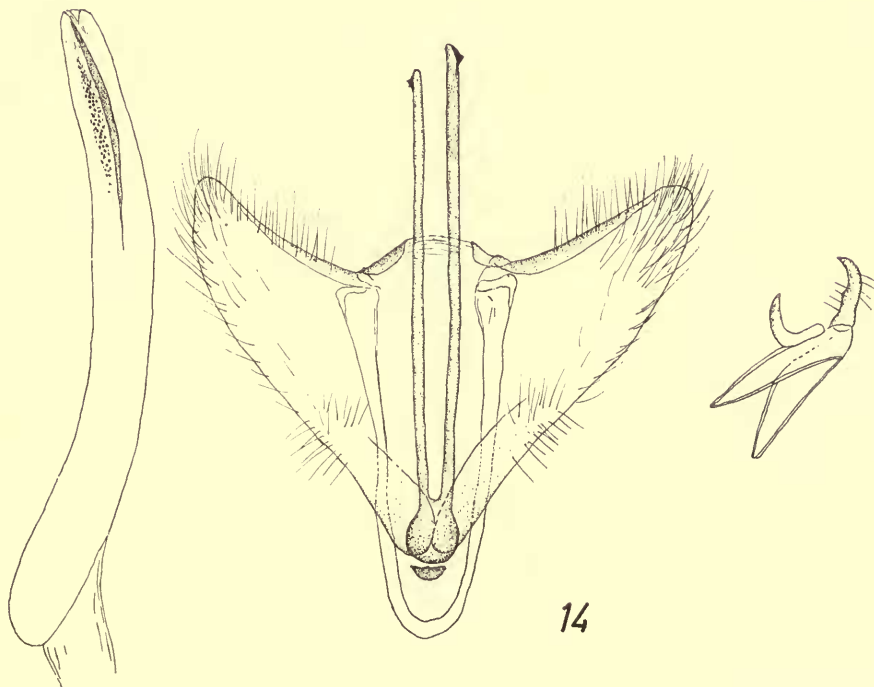
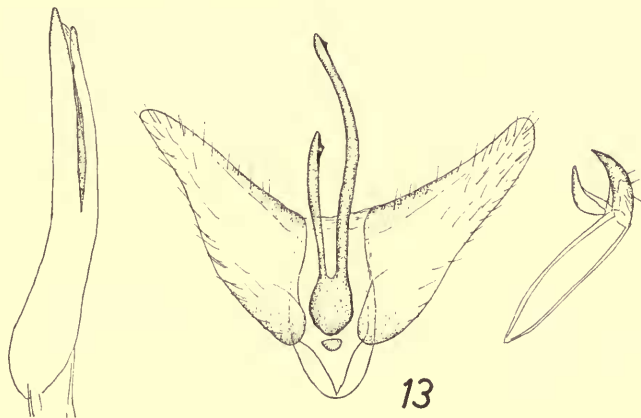
Other material. HUNGARY : 16 ex. in BM(NH) and in author's coll ; POLAND : Lower Silesia, viii, 7 ex. in author's coll. CENTRAL ASIA : Buchara, 1 ♀ ; Syr-Darja, 1 ♂, Semipalatinsk, 21 ex., in Zoologitscheskij Institut, Leningrad ; Dsharkent, 1 ♂, in Zoologische Sammlung d. Bayerischen Staates, Munich. CHINA : Prov. Shantung, 1 ♂ in Muzeul G. Antipa, Bucharest.

Chilo luteellus (Motschulsky)

(Pl. 3, fig. 3 ; Text-figs 14, 16)

Schoenobius luteellus Motschulsky, 1866 : 199.

- Chilo concolorellus* Christoph, 1885 : 149, pl. 8, fig. 15 a, b [syn. Bleszynski, 1962b : 108].
Chilo gensanellus Leech, 1889 : 108, pl. 5, fig. 9 [syn. Kapur, 1950 : 397].
Chilo dubia Bethune-Baker, 1894 : 48, pl. 1, figs 18, 19 [syn. Rebel, 1901 : 9].
Chilo lutellus (Motschulsky) Hampson, 1896 : 956 [mis-spelling].
Chilo boxanus E. Hering, 1903 : 111 [syn. Bleszynski, 1962b : 108].
Chilo plumboseus Chrétien, 1910 : 366 [syn. Bleszynski, 1962b : 108].
Chilo luteellus (Motschulsky) ; Shibuya, 1928a : 144, pl. 2, fig. 30.
Chilo pseudoplumbellus Caradja, 1932 : 117 [syn. Bleszynski, 1962b : 108].



FIGS 13-14. *Chilo*, ♂ genitalia. 13, *phragmitellus*. 14, *luteellus*, Syria, holotype of *molydellus*.

Chilo luteellus (Motschulsky) ; Marumo, 1933 : 55.

Chilo molydellus Zerny, in Osthelder, 1935 : 79 [syn. Bleszynski, 1962b : 108].

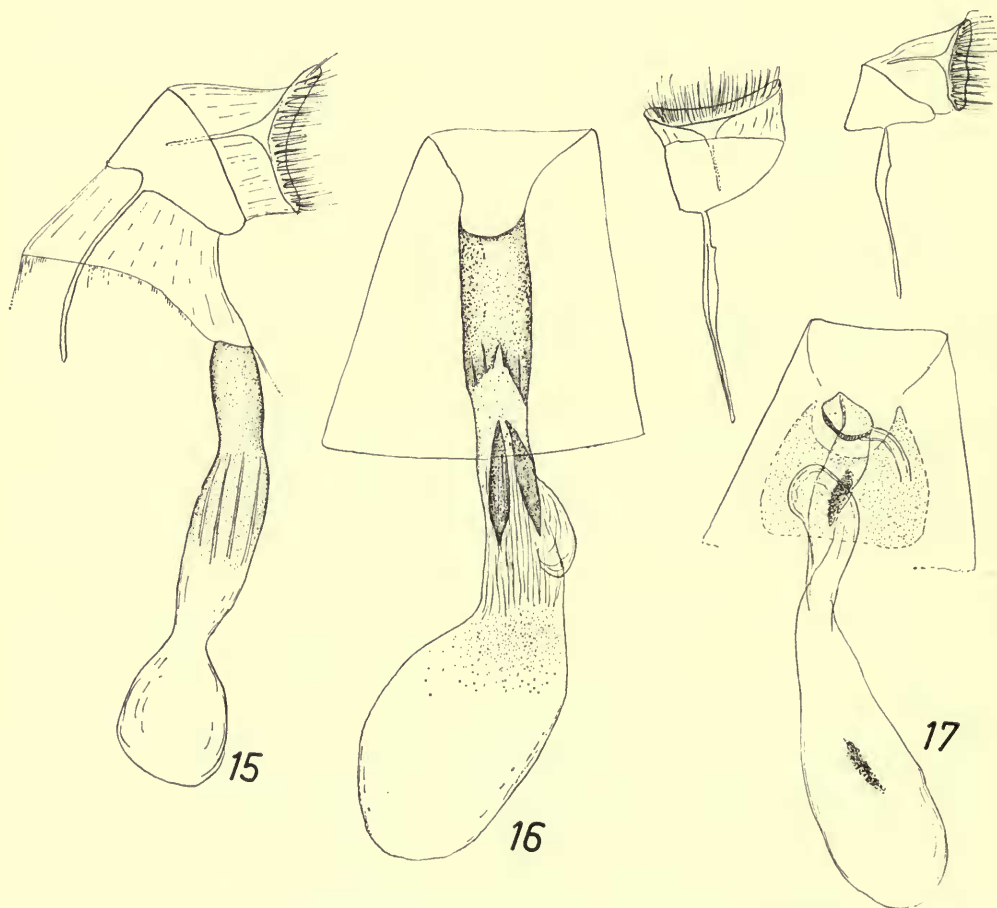
Chilo molybdellus (Zerny) ; Osthelder, 1941, pl. 15, fig. 9 [emendation of *molydellus*].

Chilo luteellus (Motschulsky) ; Bleszynski, 1962b : 108, figs 1 [♂ genitalia], 17-19 [♀ genitalia], pl. 13, figs 1, 2 [adults].

Chilo luteellus (Motschulsky) ; Okano, 1962 : 124, pl. 6, fig. 4 [♂ genitalia], pl. 14, fig. 2 [♀ genitalia].

Chilo luteellus (Motschulsky) ; Bleszynski, 1965 : 106, figs 56-1, 2 [face], pl. 4, fig. 56-1, 2 [adults], pl. 41, fig. 56 [♂ genitalia], pl. 93, fig. 56 [♀ genitalia].

Head similar as in *phragmitellus* except for labial palpus which is proportionately slightly shorter in *luteellus* : 4 (♂) to 5 (♀) times as long as diameter of eye. Fore wing : length 13.0-18.0 mm ; R_1 free ; termen in ♀ less oblique than in *phragmitellus* ; ground-colour varying from brownish yellow to brown, with variable irroration of metallically lustrous scales arranged in longitudinal rows along veins ; some specimens with a very slight trace of subterminal line. Hind wing silky white to creamy.



FIGS 15-17. *Chilo*, ♀ genitalia. 15, *phragmitellus*, Europe. 16, *luteellus*, Japan. 17, *suppressalis*, Manchuria.

♂ genitalia (Text-fig. 15) : similar to *phragmitellus* but with arms of juxta-plate equal in length and much longer.

♀ genitalia (Text-fig. 17) : ductus bursae with distinct swelling which is lacking in *phragmitellus* ; corpus bursae with scobinate area.

The adults are on the wing from May to August. The data on the chaetotaxy of the larva are to be found in Kodama, 1958 : 15, pl. 4, figs 10–15. The larva and pupa were also treated by Yamanaka Mochizuki, 1960 : 24, figs 2, 5, 6.

Distribution. Spain ; south Italy ; south Roumania ; north Africa ; Near East ; Central Asia ; Prov. Shantung, China ; Korea ; Japan, Hokkaido, Honshu, Kyushu and Shikoku ; Philippines.

Type material examined. *luteellus*. Neotype ♀. '[Japan], Kugenuma, Fuji-sawa, 16.ix.1959, H. Inoue' [Selected by Bleszynski, 1965 : 106], in BM(NH).

concolorellus. Lectotype ♂. '[Transcaspia], Askhabad, 21.9.82, *Ch. concolorellus*' [Selected by Bleszynski, 1962b : 108] ; 1 ♀ paralectotype, Askhabad [the other ♀ syntype from AMUR, Baranovka is referable to *christophi*], in Zoologitscheskij Institut, Leningrad.

gensanellus. Lectotype ♂. '[Korea], Gensan, July 1887, Leech', GS-8608-BM [Selected by Bleszynski, 1965 : 106], in BM(NH).

boxanus. Lectotype ♀. 'China, Wu-Sung, Seitz', GS-653-SB, in Institute of Zoology, Warsaw [Selected by Bleszynski, 1962b : 108] [the ♂ syntype is referable to *suppressalis*].

dubia. LECTOTYPE ♀ (present designation). 'Egypt, Alexandria, W. M. Malsden', GS-13018-BM, in BM(NH).

plumbosellus. 6 ♂♀ syntypes, Biskra, Algeria, 7.vi and 4.ix, in Muséum National d'Histoire Naturelle, Paris.

pseudoplumbellus. Lectotype ♂. 'China Tientsin', in Muzuel G. Antipa, Bucharest [Selected by Bleszynski, 1962b : 108].

molydellus. Lectotype ♂. 'Syr [ia] sept. Amanus s. Jüksek Dag, vii./ix.1932 ; *Chilo molydellus* Type ♂', GS-761-SB [Selected by Bleszynski, 1965 : 106], in Naturhistorisches Museum, Vienna.

Other material. SPAIN : 1 ♀, in coll. Agenjo, Madrid ; ITALY : 1 ♂, Lazio, in author's coll. ROUMANIA : Mangalia, 1 ♂, 1 ♀, vii–viii, in author's coll. ; Mangalia, 3 ♀, vii–viii, in coll. Popescu-Gorj, Bucharest ; ALGERIA : Biskra, 12 ♀, in Museum A. Koenig, Bonn ; ISRAEL : Upper Jordan Valley, 1 ♂ 2 ♀, 16.v., in author's coll. ; CHINA : Prov. Shantung, 1 ♂, in Muzeul G. Antipa, Bucharest ; JAPAN : Honshu, 2 ♀ in author's coll. ; PHILIPPINES : Luzon, Mt. Makiling, 1 ♀, in United States National Museum, Washington, D.C.

Chilo vergilius sp. n.

(Text-fig. 24)

Ocellus well developed. Face moderately produced forward with distinct point ; ventral ridge absent. Labial palpus 3 times as long as diameter of eye. Fore wing : R_1 free ; length 10.5 mm ; ground-colour very light dull white-grey ; subterminal and median lines distinct, ochreous brown ; suffusion of brown scarce scales ; discal dot absent ; terminal dots very

distinct ; fringe slightly glossy, concolorous with ground-colour of wing, with darker basal line. Hind wing light brown with whitish fringe.

♂ genitalia (Text-fig. 24) : valva strongly tapering with rather distinct basal-costal projection; arms of juxta-plate equal in length, very long, thin, without subapical teeth ; aedeagus with long ventral arm and bulbous basal projection ; cornuti absent.

This species is described from one ♂. The genitalia are perfectly distinct from those in allied species ; arms of juxta-plate are somewhat similar as in *luteellus*, but shorter, thinner and without subapical teeth. The aedeagus is similar to *suppressalis*, but *suppressalis* has no bulbous basal projection. The colour and maculation somewhat resemble those in *suppressalis*, which, however, has no ochreous brown transverse lines. Moreover, the face of *suppressalis* has a distinct ventral ridge, which is absent in *vergilius*.

Holotype ♂. India, 'Bombay', slide 11317-BM, in BM(NH).

Chilo suppressalis (Walker)

(Pl. 3, figs 4, 5 ; Text-figs 6, 17, 18)

Crambus suppressalis Walker, 1863 : 166.

Jartheza simplex Butler, 1880 : 690 [syn. Kapur, 1950 : 397].

Chilo suppressalis (Walker) Hampson, 1896a : 957.

Chilo simplex (Butler) Rebel, 1901 : 257.

Chilo boxanus E. Hering, 1903 : 111 [♂], [in part].

Chilo simplex (Butler) ; Leech, 1901 : 397 [in part].

Chilo suppressalis (Walker) ; Leech, 1901 : 398.

Chilo simplex (Butler) ; Shibuya, 1928a : 143, pl. 2, figs 28, 29.

Chilo simplex (Butler) ; Shibuya, 1928b : 54, pl. 4, fig. 10.

Chilo oryzae Fletcher, 1928 : 59, pls 3, 4 [syn. Kawada, 1930 : 145].

Chilo simplex (Butler) ; Kawada, 1930 : 145.

Chilo simplex (Butler) ; Marumo, 1933 : 51, pl. 2, fig. 10, pl. 3, fig. 7 [labial palpus], pl. 4, fig. 4 [head], pl. 5, fig. 1 [wing venation].

Chilo oryzae (Fletcher) ; Rebel, 1940 : 116, pl. 18, figs 1-4 [larva] [mis-spelling.]

Chilo suppressalis (Walker) ; Kapur, 1950 : 397, pl. 2, fig. 2 [♂ genitalia], pl. 3, figs 1, 6, 7 [♀ genitalia], 12, 13 [♀ genitalia].

Chilo suppressalis (Walker) ; Zimmerman, 1958 : 342, fig. 279 [head and wing-venation], 280 [adult], 281 [♂ genitalia].

Chilo suppressalis (Walker) ; Okano, 1962 : 124, pl. 6, fig. 5 [♂ genitalia], pl. 14, fig. 1 [♀ genitalia].

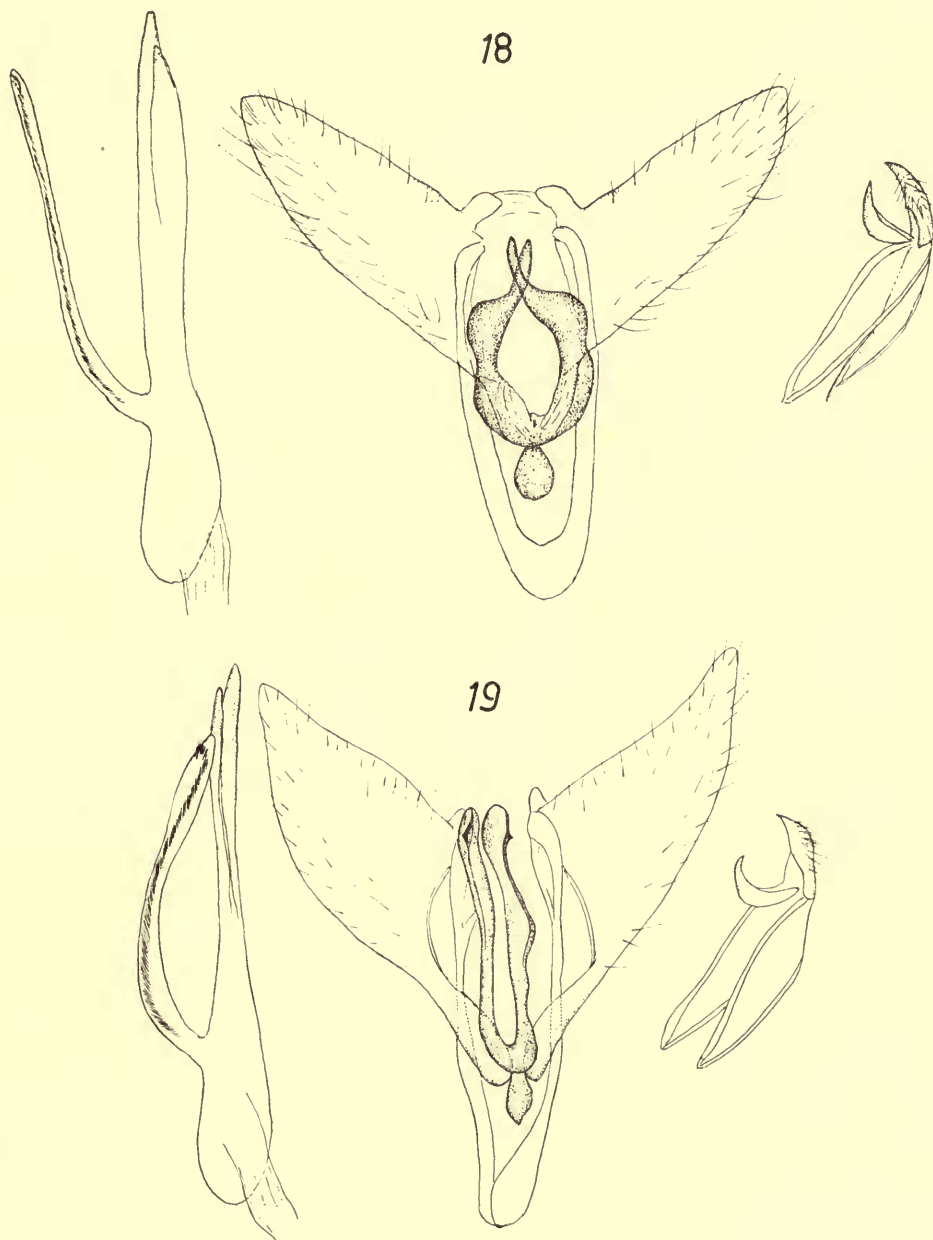
Chilo suppressalis (Walker) ; Bleszynski, 1965 : 109, fig. 58 [larva and pupa], pl. 4, figs. 58-1, 2 [adults], pl. 41, fig. 58 [♂ genitalia], pl. 93, fig. 58 [♀ genitalia].

Ocellus well developed. Face strongly protruding forward beyond eye, with very distinct corneous point and ventral ridge. Labial palpus 3 (♂) to 3.5 (♀) times as long as diameter of eye. Fore wing : length 11.0-14.0 mm ; R_1 free ; ground-colour varying from dirty white to yellow-brown, variably sprinkled with grey-brown scales ; subterminal line ill-defined or absent ; median line oblique, brown, often reduced, particularly in light coloured specimens ; metallic scales absent. Hind wing white to yellow brownish.

♂ genitalia (Text-fig. 18) : pars basalis small ; juxta-plate symmetrical, arms equally long, very distinctly swollen near apices ; subapical teeth absent ; aedeagus with long, thin, ventral arm ; bulbous basal projection absent.

♀ genitalia (Text-fig. 17) : ostial pouch heavily sclerotized, slightly demarcated from ductus bursae ; the latter posterior to ostial pouch distinctly swollen, with heavily sclerotized band ; signum distinct, elongate, with median ridge.

This species is one of the most important pests of rice in East Asia, India and Indonesia. The larva of *suppressalis* bores into the stem of rice. Fletcher and Ghosh (1920 : 390, pls 57, 58) gave detailed study of the biology and immature stages of this species in India under the name 'Rice *Chilo*'. The full bibliography



FIGS 18-19. *Chilo*, ♂ genitalia. 18, *suppressalis*, Manchuria. 19, *hyrax*, Ussuri, holotype.

of the literature dealing with biology and control of *suppressalis* is found in Jepson, 1954 and Katiyar, 1964.

Distribution. Spain ; China ; Korea ; Japan, Honshu, Hokkaido, Shikoku, Kyushu ; Formosa ; Malaya ; Indonesia ; India ; Hawaii. In Spain and probably also in Hawaii *suppressalis* was presumably introduced by man. In East Asia *suppressalis* occurs in some places together with allied *hyrax* and *christophi*.

C. suppressalis is similar to *hyrax* and *christophi*, but is generally smaller and has often a more distinct pattern of the fore wing. The ground-colour of the fore wing is generally yellow, being more greyish in *suppressalis*. However, many females of *suppressalis* are also yellow. The male genitalia of three species are distinct. The female genitalia are, however, much less diagnostic. The ostial pouch of *suppressalis* is generally much smaller than that in *christophi*, and the swelling of the ductus bursae in *hyrax* is larger than in *suppressalis*.

C. suppressalis has for a long time been recorded from the Near East as '*Chilo simplex*', but all these records are referable to *agememnon*. So far I have found no specimen of *suppressalis* from Near East.

Type material examined. *suppressalis*. Holotype ♀. '[China] Shanghai, 58.60', GS-2742-BM, in BM(NH).

simplex. Lectotype ♂. (Selected by Bleszynski, 1965 : 109). 'Formosa, 80.115.204 ; *Jartheza simplex* ♂ Butler, Type', GS-2743-BM ; 1 ♂ paralectotype, Formosa, GS-13017-BM, in BM(NH).

oryzae. Holotype ♀. '1.ii. Rice stubble, Pusa no. 1677.A.', abdomen missing, in BM(NH).

Other material. SPAIN : 3 ♂, in Naturhistorisches Museum, Vienna. USSURI : Vinogradovka, 34 ex. in Zoologitscheskij Institut, Leningrad ; CHINA : Kiangsu, Szetschwan, Shantung, Kwangtung and Fukien, 35 ex. in Muzeul G. Antipa, Bucharest, A. Koenig Museum, Bonn, Canadian National Collection, Ottawa, Ont., Canada and author's coll. ; SUMATRA : 2 ♀ in BM(NH) ; CELEBES : Goa, Malino, 1 ♀, in BM(NH) ; JAPAN : Honshu, Kyushu, Shikoku, v-ix, in BM(NH) and in author's coll. ; HAWAII : 80 ex. in United States National Museum, Washington, D.C., U.S.A.

Chilo hyrax Bleszynski

(Pl. 3, figs 6, 7 ; Text-figs 19, 20)

Chilo hyrax Bleszynski, 1965 : 108, fig. 57 [head], pl. 4, figs 57-1, 2 [adults], pl. 41, fig. 57 [♂ genitalia], pl. 93, fig. 57 [♀ genitalia].

Similar to *suppressalis*, but generally larger : length of fore wing, 12.0-16.5 mm ; ground-colour of fore wing yellow to brown, variably dusted with brown scales ; subterminal line reduced ; median line marked by row of brown specks, or completely reduced ; metallic scales absent.

♂ genitalia (Text-fig. 19) : similar to those in *suppressalis* but distinguished by the different shape of juxta-plate, the arms of which are narrower, not dilated in the middle ; in addition, subapical teeth present.

♀ genitalia (Text-fig. 20) : ostial pouch small, well demarcated from ductus bursae ; the

latter distinctly swollen, not twisted, with distinct, heavily sclerotized, elongate patch ; signum much larger than in *suppressalis* and *christophi*.

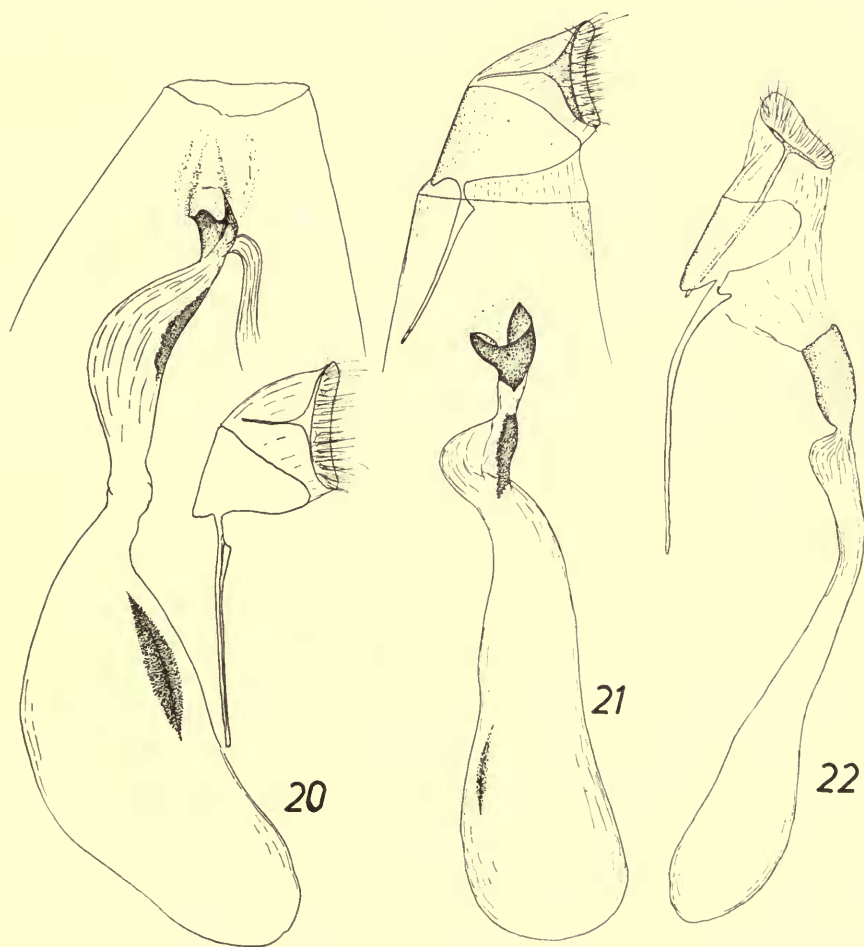
Early stages and biology unknown.

Distribution. China, Mokanshan and Manchuria ; Russia, Ussuri ; Japan, Honshu.

Type material examined. Holotype ♂. 'Ussuri', GS-3086-SB, in author's coll.

Paratypes : Manchuria, Djalantun, 2 ♀, GS-901-SB and GS-2946-SB, in author's coll. ; Ussuri, Jakovlevka, 5 ♀, GS-2404-SB and GS-2411-SB, in Zoologitscheskij Institut, Leningrad ; Ussuri, Kasakewitsch, 2 ♀, GS-2407-SB and GS-1709-SB, in Muzeul G. Antipa, Bucharest.

Other material. CHINA : Ussuri, Kasakewitsch, 1 ♀, in author's coll. ; Manchuria,



FIGS 20-22. *Chilo*, ♀ genitalia. 20, *hyrax*, Manchuria. 21, *christophi*, Ussuri, paratype. 22, *pulverosellus*, Syria, holotype.

Hsiaoling, 1 ♀, in author's coll. ; Mokanshan, 1 ♀ in Muzeul G. Antipa, Bucharest ; JAPAN : Honshu, Kinku-Osaka, 1 ♀ in Canadian National Collection, Ottawa, Ont., Canada.

Chilo christophi Bleszynski

(Pl. 3, figs 8, 9 ; Text-figs 21, 23)

Chilo concolorellus Christoph, 1885 : 149 [in part].

Chilo christophi Bleszynski, 1965 : 112, pl. 4, figs 59-1, 2 [adults], pl. 42, fig. 59 [♂ genitalia], pl. 93, fig. 59 [♀ genitalia].

Chilo antipai Popescu-Gorj, 1968 : 845, figs 7 and 8 [head] 9 [♂ genitalia], 10 [♀ genitalia], pl. 1, figs 1-3 [adults]. **Syn. n.**

Similar to *suppressalis* but much larger and with pattern of fore wing less distinct. Length of fore wing, 14.0-19.0 mm.

♂ genitalia (Text-fig. 23) : as in *suppressalis* except for juxta-plate, the arms of which are stouter and not dilated, without distinct subapical teeth.

♀ genitalia (Text-fig. 21) : ostial pouch usually larger than in *suppressalis*.

The examined specimens were taken in May and June.

Distribution. Russia, South Ural and Armenia, Central Asia, Ussuri ; North China. The range of *christophi* overlaps that of *suppressalis* and *hyrax* in Ussuri.

Type material examined. Holotype ♀. 'Ussuri Baranovka, Hed., *concolorellus*', GS-2408-SB, in Zoologitscheskij Institut, Leningrad.

Paratypes : Ussuri, Chabarovka, 1 ♀, GS-2407-SB ; Ussuri, Winogradovka, 1 ♀, GS-2654-SB ; Ussuri, Lake Chaicha, 1 ♀, GS-2410-SB ; Ussuri, Frolovka, 1 ♂, GS-2412-SB, in Zoologitscheskij Institut, Leningrad ; China, Tsingtao, 1 ♂, GS-818-Toll ; Manchuria, Yablonya, 1 ♂, GS-890-SB ; Thian-Shan, 1 ♀, GS-2413-SB, in author's coll. ; Central Asia, Kuldja, 1 ♀ ; South Ural, Uralsk, 2 ♀, GS-1667-SB, in Muzeul G. Antipa, Bucharest ; Central Asia, Issyk-Kul, 1 ♀, in Naturhistorisches Museum, Vienna.

Other material. JAPAN : 'Japan', 1 ♂, in BM(NH).

Chilo pulverosellus (Ragonot)

(Pl. 1, fig. 1 ; Text-figs 22, 25)

Chilo pulverosellus Ragonot, 1885 : xcvi.

Chilo brevipalpellus Zerny, 1914 : 303, pl. 25, fig. 6 [syn. Bleszynski, 1962b : 109].

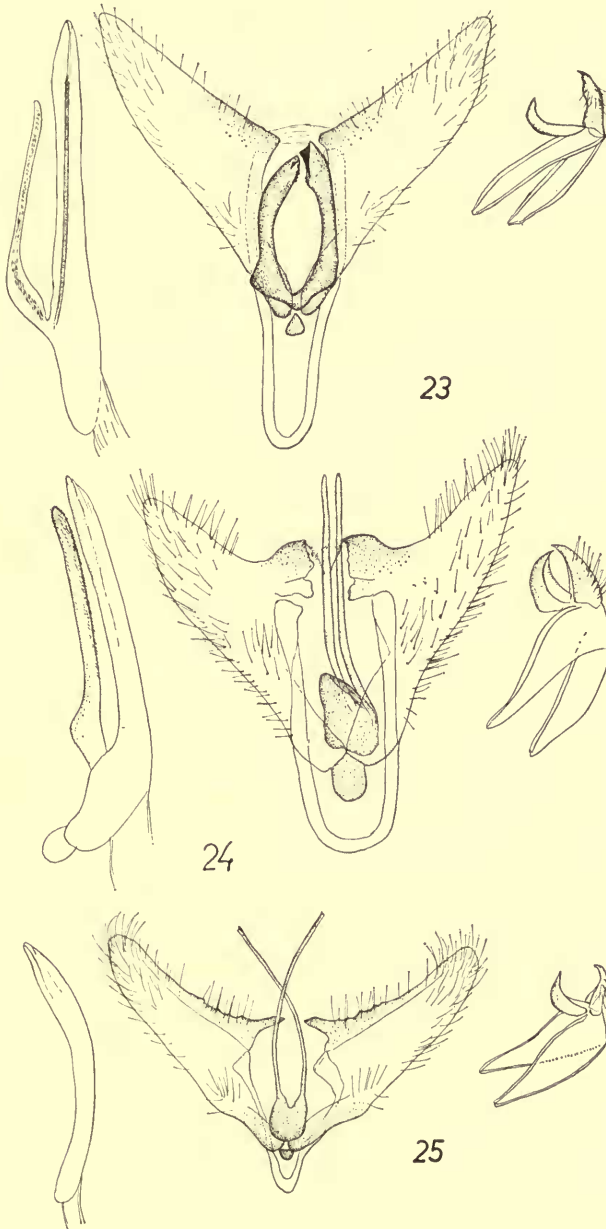
Eschata fernandezi J. de Joannis, 1932 : 192 [syn. Bleszynski, 1962b : 109].

Chilo lemarchandellus D. Lucas, 1945 : 7 [syn. Bleszynski, 1962b : 109].

Chilo pulverosellus Ragonot ; Bleszynski, 1965 : 115, pl. 4, figs 61-1, 2, pl. 42, fig. 61 [♂ pl. 93, genitalia], pl. 93, fig. 61 [♀ genitalia].

Ocellus well developed. Face broadly rounded, moderately protruding forward beyond eye ; corneous point and ventral ridge both absent. Labial palpus 2 (♂) to 2.5 (♀) times as long as diameter of eye. Fore wing : length 11.0-13.0 mm ; R_1 free ; white to cream, variably dusted with brown scales ; some specimens with indistinct longitudinal brown lines along veins ; some females almost unicolorous white ; subterminal line ill-defined or absent ; median line absent or ill-defined ; discal dot absent or indistinct ; metallic scales absent. Hind wing silky white to cream.

♂ genitalia (Text-fig. 25) : pars basalis weak ; arms of juxta-plate very long and thin ; each arm provided with heavily sclerotized strengthening ending in minute tooth ; cornuti absent ; basal projection and ventral arm both absent.



FIGS 23-25. *Chilo*, ♂ genitalia. 23, *christophi*, China, Prov. Shantung, paratype. 24, *vergilius*, India, Bombay, holotype. 25, *pulverosellus*, Jordan, holotype of *brevipalpellus*.

♀ genitalia (Text-fig. 22) : eighth tergum long ; ostial pouch long, rather well demarcated from ductus bursae ; signum absent.

The larva was found to be a pest of maize (Bodenheimer, 1930 : 310 ; Kuznetsov, 1960 : 51). The adults are on the wing from May till August. The species probably has two or three generations a year.

Distribution. South France ; Bulgaria ; Russia, Ukraine, Daghestan, Transcaucasus, Buchara, Transcaspia ; Turkey ; Israel ; Syria.

Type material examined. *pulverosellus*. Holotype ♀. 'Syrie', GS-3648-Viette, in Muséum National d'Histoire Naturelle, Paris.

brevipalpellus. Holotype ♂. 'Jordan-Nutzdorf', GS-9034-Mus. Vind., in Naturhistorisches Museum, Vienna.

fernandezi. Holotype ♀. '[France] Trinquetteville, 18.8.31', GS-3615-Viette, in Muséum National d'Histoire Naturelle, Paris.

lemarchandellus. Lectotype ♀ (selected by Bleszynski, 1965 : 116). '[France] Herault, St. Guilhem-le-Desert, 20.-30.7.1945', GS-3649-Viette, in Muséum National d'Histoire Naturelle, Paris ; 1 ♀ paralectotype, same locality and same coll.

Other material. BULGARIA : Nessebar, viii, 1 ♂, in author's coll. TURKEY : Anatolia, 4 ♀, in BM(NH) ; SYRIA : 1 ♂, 1 ♀, in Naturhistorisches Museum, Vienna ; ISRAEL : Jordan Valley, 1 ♂, in author's coll.

Chilo partellus (Swinhoe)

(Pl. 1, figs 2, 3 ; Pl. 3, fig. 13 ; Text-figs 7, 26, 28)

Crambus zonellus Swinhoe, 1884 : 528, pl. 48, fig. 16 [preoccupied by *Crambus zonellus* Zeller, 1847 ; syn. Hampson, 1896a : 957 ; Bleszynski & Collins, 1962 : 243].

Crambus partellus Swinhoe, 1885 : 879.

Chilo simplex (Butler) ; Hampson, 1896a : 957 [in part].

Chilo simplex (Butler) ; Hampson, 1896b : 26 (mis-identification).

Chilo simplex (Butler) ; Rebel, 1901 : 259 [in part].

Diatraea calamina Hampson, 1919 : 544 [in part].

Chilo simplex (Butler) ; Fletcher & Ghosh, 1920 : 285, pls 45-47 [early stages].

Chilo zonellus (Swinhoe) Fletcher, 1928 : 58.

Argyria lutulentalis Tams, 1932 : 127, pl. 4, figs 6, 7 [syn. Martin, 1954 : 120].

Chilo zonellus (Swinhoe) ; Gupta, 1940 : 806, pl. 36, fig. 4 a, b [wing venation], pl. 37, figs 7, 8 [♂ genitalia], text-fig. 5 [larva].

Chilo zonellus (Swinhoe) ; Isaac & Venkatraman, 1941 : 810, pl. 46, fig. 4 [pupa], pl. 49, figs 1-3 [pupa].

Chilo zonellus (Swinhoe) ; Isaac & Venkatraman, 1941 : 801, pl. 42, fig., pl. 43, fig., pl. 45, fig [larva].

Chilo zonellus (Swinhoe) ; Kapur, 1950 : 399, pl. 1, fig. 8 [head], pl. 2, fig. 3 (♂ genitalia), pl. 3, figs 2, 8 [♂ genitalia], 15 (♀ genitalia).

Chilo partellus (Swinhoe) Bleszynski & Collins, 1962 : 243.

Chilo partellus (Swinhoe) ; Bleszynski, 1965 : 119, figs 63-1, 2 [larva and pupa], pl. 5, figs 63-1, 2 [adults], pl. 42, fig. 63 [♂ genitalia], pl. 94, fig. 63 [♀ genitalia].

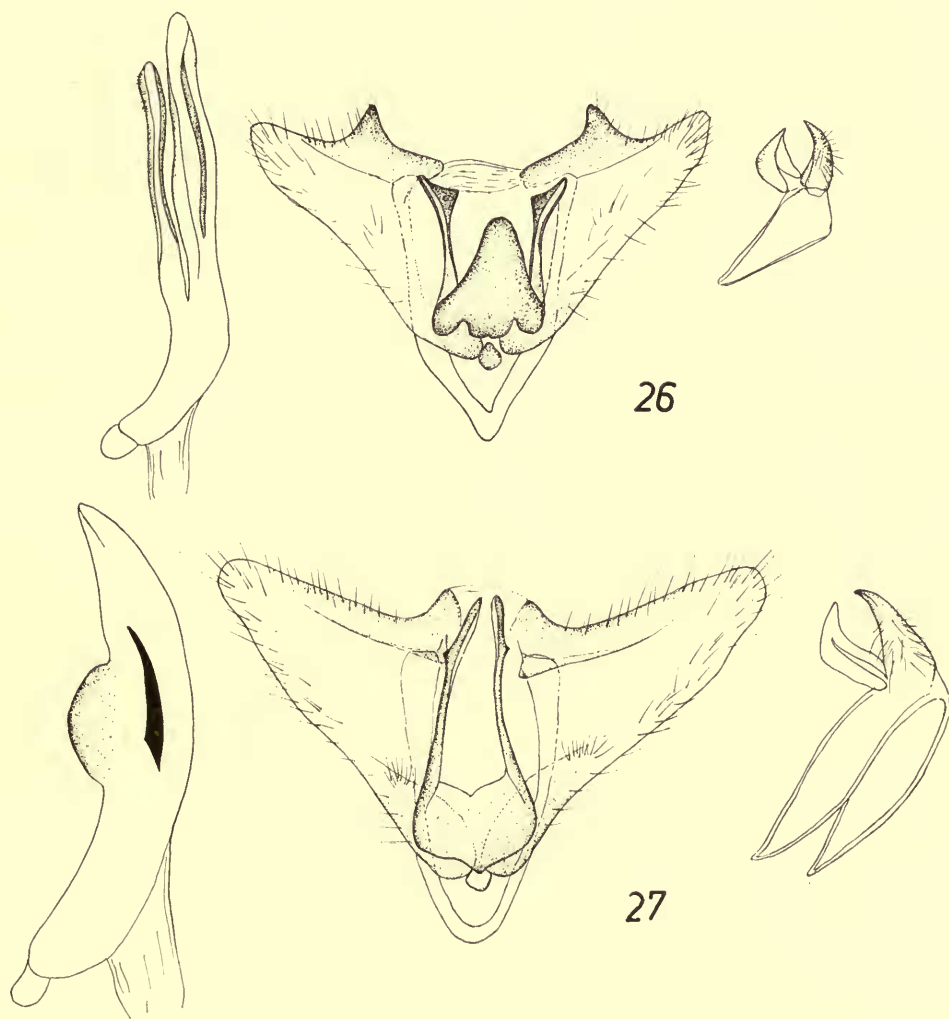
Ocellus well developed. Face distinctly conical, with distinct corneous point ; ventral ridge slight. Labial palpus 3 (♂) to 3.5 (♀) times as long as diameter of eye. Fore wing : length 7.0-17.0 mm ; R_1 free ; ground-colour varying from yellow to brown, variably dusted with

fuscous scales ; subterminal line a delicate brown line ; median line ill-defined ; discal dot present ; metallic scales absent. Hind wing dirty white to grey.

♂ genitalia (Text-fig. 26) : costa with median, strong, tapering projection ; juxta-plate symmetrical, with large central part, projected caudad, base with two notches ; arms stout, not extending beyond costa of valva, each with a strong sub-apical tooth ; aedeagus with bulbous basal projection and ventral arm.

♀ genitalia (Text-fig. 28) : ostial pouch very heavily sclerotized ; delicately longitudinally wrinkled ; well demarcated from ductus bursae ; deeply notched caudally ; signum lamellate with median ridge.

The larva of *partellus* is a notorious pest of maize, sorghum and rice, but also attacks sugar-cane when it is grown in the neighbourhood of infested rice or maize



FIGS 26-27. *Chilo*, ♂ genitalia. 26, *partellus*, Afghanistan. 27, *infuscatellus*, Central Asia, Tadzhikistan, lectotype of *tadzhikiellus*.

fields. Ingram (1959) listed the following host plants of *partellus* in Uganda : *Hyparrhenia rufa*, *Rottboelia compressa*, *Saccharum officinarum*, *Sorgum vulgare*, *S. verticilliflorum*, *Vossia cuspidata*, *Eleusine coracana*, *Zea mays*, *Oryza sativa*, *Panicum maximum*, and *Pennisetum purpureum*. For details on the biology and early stages of *partellus* see Fletcher and Ghosh (1920 : 385, '*Chilo simplex*') and Gupta (1940). The descriptions of the larva and the pupa were given by Isaac and Rao (1941) (larva) and Isaac and Venkatraman (1941) (pupa).

Hampson (1896a, 1896b) regarded *partellus* and *zonellus* as synonyms of *simplex* (= *suppressalis*). Only Fletcher (1928) considered *simplex* and *zonellus* as distinct species.

Judging by the female genitalia, *partellus* is close to *tamsi* (♂ of *tamsi* is unknown). *C. tamsi* is easily separable from *partellus* by much smaller ostial pouch, which is elongate being rounded in *partellus*.

Distribution. Afghanistan ; India ; West Pakistan ; Sudan ; Uganda ; Tanzania ; Malawi ; Comores Is. Detailed data on the distribution of *partellus* in Africa are given by Ingram (1948) and Williams (1959).

Type material examined. *zonellus*. LECTOTYPE ♂ (present designation). '[Pakistan] Kurrachee, 5.80', GS-4215-BM, in BM(NH).

partellus. Lectotype ♂ (selected by Bleszynski, 1965 : 119). '[India] Poona, 87-88 (1148).10.82', GS-4216-BM, in BM(NH). Paralectotypes. 12 ex. from Poona and Bombay, India.

lutulentalis. Holotype ♀. 'Z.2311.1500 ft. Ft. Johnston, Nyasaland H. 14.iv. 1929 ♀ C. Smee', GS-1371-BM, in BM(NH).

Other material. INDIA : Khasis, Nilgiris, Bombay, Sikkim, Coimbatore, Meer, 25 ex., in BM(NH) ; AFGHANISTAN : Sarobi, 6 ex., in coll. Amsel, Karlsruhe ; SUDAN : Ed Damar, 5 ex. 31.x, in Zoologische Sammlung d. Bayerischen Staates, Munich and in author's coll. TANZANIA : 2 ♀ in author's coll. ; COMORES Is. : 5 ♀ in Muséum National d'Histoire Naturelle, Paris.

Chilo tamsi Kapur

(Pl. 5, fig. 1 ; Text-fig. 29)

Chilo tamsi Kapur, 1950 : 400, pl. 3, fig. 14 [♀ genitalia].

Ocellus small. Labial palpus 3.5 times as long as diameter of eye (♀). Face conical, pointed, without ventral ridge. Fore wing length 19.0 mm ; *R*₁ free ; ground-colour light straw-yellow with very sparse, irregular sprinkling of brown to dark brown scales and with a distinct discal dot ; transverse lines absent. Hind wing white.

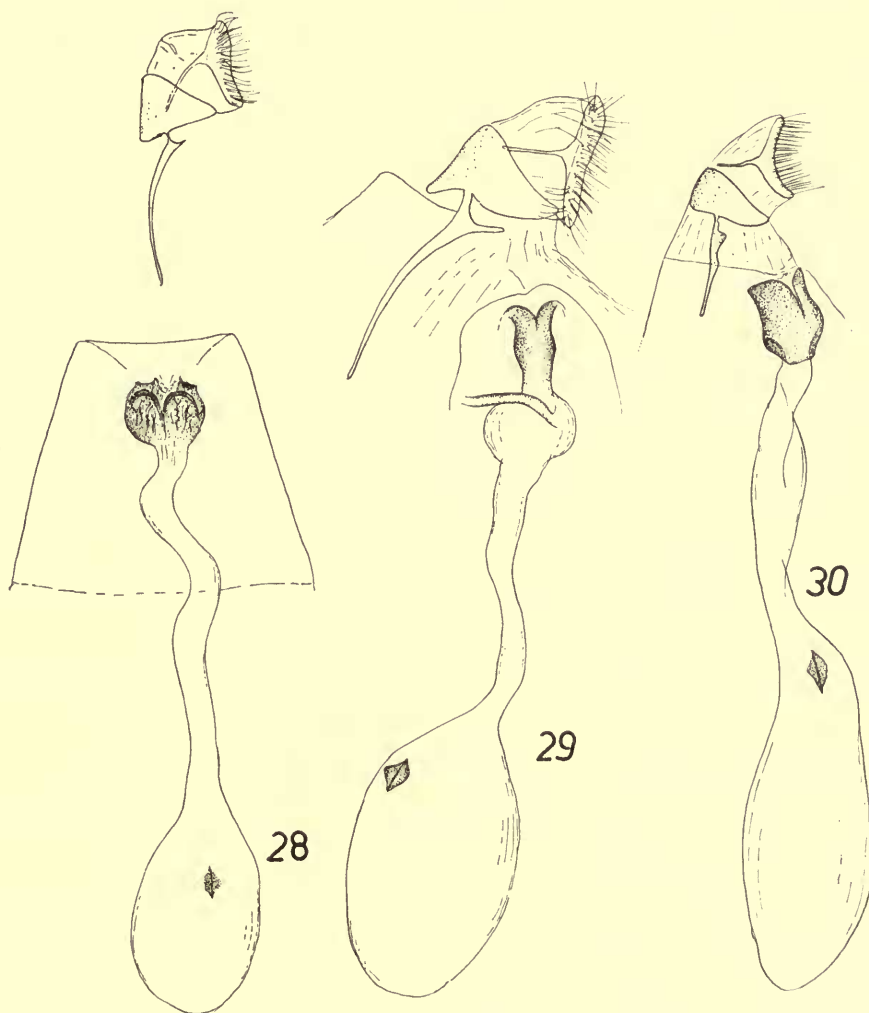
♀ genitalia (Text-fig. 29) : ostial pouch much elongate and heavily sclerotized, tubular, deeply incised ; ductus bursae distinctly swollen in caudal part ; signum sub-rectangular bearing median ridge.

Distribution. South India.

Type material examined. Holotype ♀. '[India] : Travancore, Peermade, Mrs Imray, 1904-226', GS-617-BM, in BM(NH).

***Chilo infuscatellus* Snellen**

(Pl. 3, figs 10–12 ; Text-figs 6, 27, 30)

Chilo infuscatellus Snellen, 1890 : 94, pl. 1, figs 5–8.*Argyria sticticraspis* Hampson, 1919 : 449 [syn. Kapur, 1950 : 404].*Argyria coniota* Hampson, 1919 : 449 [syn. Fletcher, 1928 : 58].*Diatraea calamina* Hampson, 1919 : 544 [syn. Kapur, 1950 : 404].*Diatraea auricilia* (Dudgeon) Fletcher & Ghosh, 1920 : 387, pl. 48, fig. 1 [larva], 2 [pupa], pl. 49, fig. 1 [egg], 4 [life-cycle].*Argyria sticticraspis* Hampson ; Fletcher, 1928 : 50.*Chilo infuscatellus* Snellen ; Shibuya, 1928b : 54.*Argyria sticticraspis* Hampson ; Gupta, 1940 : 788, fig. 1 [larva], pl. 36, fig. 1 [wing venation],

FIGS 28–30. *Chilo*, ♀ genitalia. 28, *partellus*, Ethiopia. 29, *tamsi*, India, holotype.
30, *infuscatellus*, Central Asia, Tadzhikistan, paralectotype of *tadzhikiellus*.

pl. 37, figs 1, 2 [♂ genitalia].

Diatraea shariinensis Eguchi, 1933 : 3, 19, pl. 1 [syn. Kapur, 1950 : 404].

Argyria sticticraspis Hampson : Isaac & Rao, 1941 : 799, 802, pls 42, 43, 45 [larva].

Argyria sticticraspis Hampson ; Isaac & Venkatraman, 1941 : 806, 814, pl. 46, fig. 2 [pupa].

Chilo tadhikiellus Gerasimov, 1949 : 704, figs 1 [wing-venation], 2 [head], 3 [♂ genitalia], 4 [♀ genitalia], 5, 6 [larva] [syn. Bleszynski, 1962b : 111].

Proceras infuscatellus (Snellen) Kalshoven, 1950 : 413, fig. 234 [pupa].

Chilotraea infuscatellus (Snellen) Kapur, 1950 : 404, pl. 1, fig. 2 (head), pl. 4, figs 1-4 [♂ genitalia], 5 [♀ genitalia].

Chilo infuscatellus Snellen ; Bleszynski, 1962b : 111, figs 4 [♂ genitalia], 20 [♀ genitalia].

Chilo infuscatellus Snellen ; Bleszynski, 1965 : 116, figs 62 [head], 62 [larva and pupa], pl. 5, fig. 62 [adult], pl. 42, fig. 62 [♂ genitalia], pl. 94, fig. 62 [♀ genitalia].

Chilo infuscatellus Snellen ; Bleszynski, 1969 : 15, figs 3 [♂ genitalia], 36 [♀ genitalia].

Ocellus well developed. Labial palpus 3 (♂) to 3.5 (♀) times as long as diameter of eye. Face rounded, slightly protruding forward beyond eye. Fore wing : length 10.0-13.0 mm ; R_1 confluent with Sc ; ground-colour and maculation very variable, dull, from light sand-yellow to chocolate-brown ; discal dot present or variably reduced ; transverse lines present or absent ; terminal dots present ; metallic scales absent. Hind wing dirty white (♂) to silky white (♀).

♂ genitalia (Text-fig. 27) : pars basalis slight ; juxta-plate symmetrical, arms reaching the basal-costal angle of valva ; each arm provided with a toothed strengthening ; aedeagus with strong ventral swelling ; a single, tapering, curved, large cornutus present.

♀ genitalia (Text-fig. 30) : ostial pouch well demarcated from ductus bursae, heavily sclerotized, deeply incised anteriorly ; signum lamellate with median ridge.

C. infuscatellus is a serious pest of sugar-cane, but also attacks juar (*Andropogon sorghum*), rarihi and batri (*Saccharum spontaneum*), ikri (*Saccharum fuscum*) and Jove grass (*Rottboelia compressa*). The details on the biology of *infuscatellus* are found in papers of Fletcher and Ghosh (1920), Fletcher (1928) and others (see bibliography of *Chilo*, Katiyar, 1964). The larva and pupa have been described by Eguchi (1933), Isaac and Roa (1941), and Isaac and Venkatraman (1941).

Three female syntypes of *calamina*, from Cownpur, Mogla Serai and Pusa, India are referable to *partellus*.

Distribution. Afghanistan ; India ; Upper Burma ; Formosa ; Tadzhikistan, Central Asia ; Java ; Timor ; Philippine Is. ; Vulcan Is.

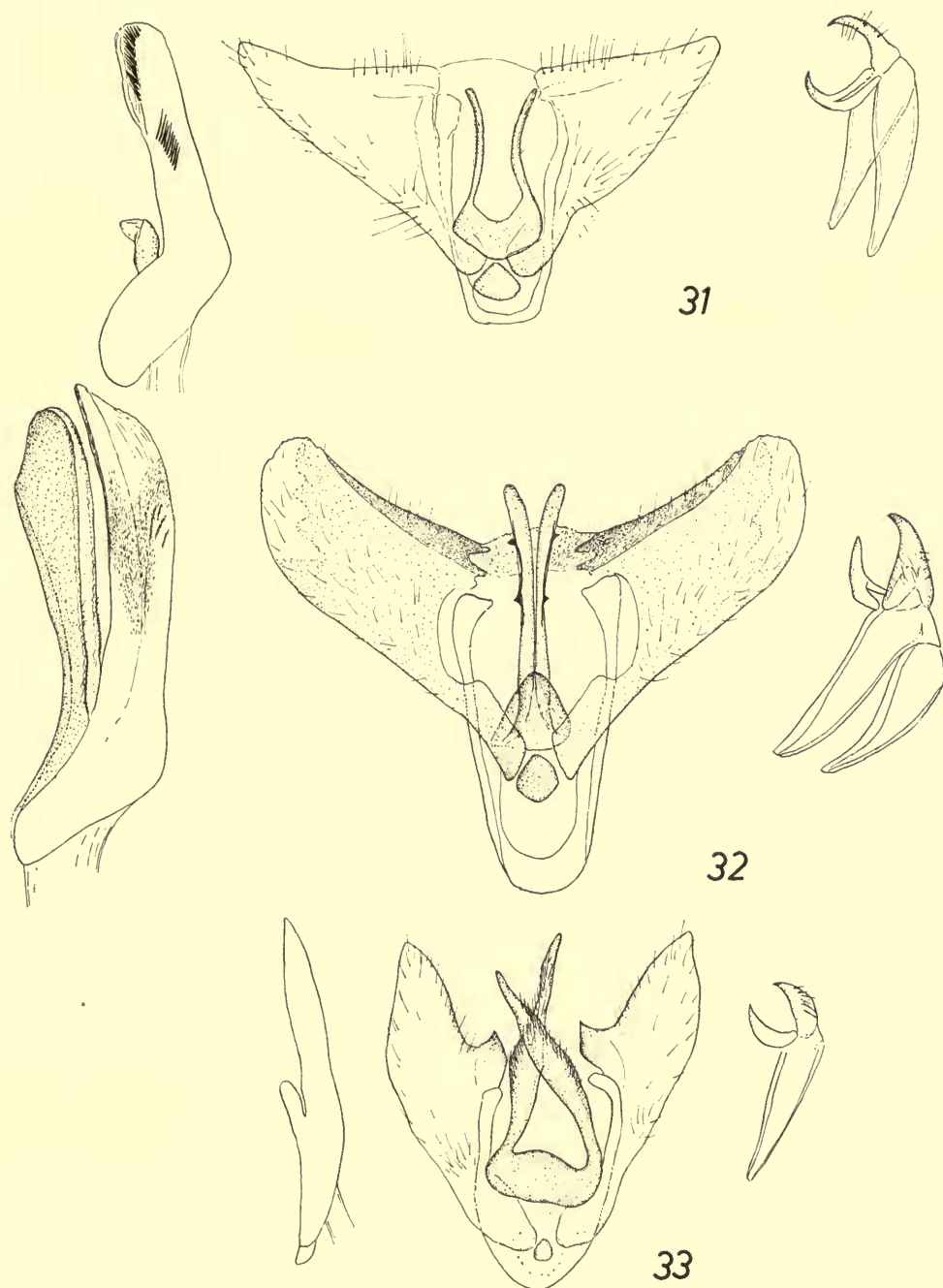
Type material examined. *infuscatellus*. Lectotype ♂ (selected by Munroe, Diakonoff and Martin, 1958). 'Java', in Museum van Natuurlijke Historie, Leiden.

sticticraspis. Holotype ♀. 'S. India, Coimbatore, 4.ii.1912, T.B. Fletcher, 1915-208', GS-2181-BM, in BM(NH).

coniorta. LECTOTYPE ♂ (present designation). 'Bengal, Behar, Pusa, 1915-48, Sugar cane', GS-2182-BM ; 1 ♂ paralectotype, same locality, taken on 11.iii.1914, abdomen missing, in BM(NH).

calamina. LECTOTYPE ♀ (present designation). 'Kinuya, Upper Burma, 23.ix.1900, coll. Bingham, 1901-157' ; 4 ♀ lectoparatypes, same data, GS-13014-BM and GS-13015-BM, in BM(NH).

shariinensis. Lectotype ♀ (selected by Bleszynski, 1965 : 116). 'Korea-Shariin, 22.vii.1929, M. Eguchi, Brit. Mus. 1931-372' ; 2 ♀ paralectotypes, same data, different dates ; abdomens missing, in BM(NH).



FIGS 31-33. *Chilo*, ♂ genitalia. 31, *pulveratus*, China, Chungking. 32, *tumidicostalis*, India. 33, *bandra*, India, holotype.

tadzhikiellus. Lectotype ♂ (selected by Bleszynski, 1965 : 117). Central Asia, Tadzhikistan, GS-417-Leningrad [specimen missing, ? lost, slide present] ; genitalia slide of 1 ♀ paralectotype ; in Zoologitscheskij Institut, Leningrad.

Other material. AFGHANISTAN : Polichomri and Sarobi, 700–1100 m, 5.vi.–3.vii.1956, 7 ♀ in coll. Amsel, Karlsruhe ; INDIA : Coimbatore, 3 ♀, in BM(NH) ; TIMOR : 1 ♀, in BM(NH) ; FORMOSA : 1 ♂ 1 ♀, 19.iii.1931, in BM(NH) ; 2 ♂ in author's coll. ; PHILIPPINES : Luzon, Klondyke, 1 ♀, in BM(NH) ; VULCAN Is., 6 ♀ in BM(NH).

***Chilo pulveratus* (Wileman & South)**

(Pl. 2, fig. 9 ; Pl. 4, figs 11, 12 ; Text-figs 7, 31, 34)

Diatraea pulverata Wileman & South, 1917 : 147.

Diatraea pulverata Wileman & South ; Shibuya, 1928b : 51.

Chilo pulverata (Wileman & South) Bleszynski, 1962b : 115.

Chilo izuensis Okano, 1962 : 123, pl. 6, fig. 6 [♂ genitalia]. **Syn. n.**

Chilo izouensis (Okano) ; Bleszynski, 1965 : 115, pl. 5, fig. 60 [adult], pl. 42, fig. 60 [♂ genitalia] [mis-spelling].

Ocellus well developed, slightly variable in size. Face broadly rounded without point. Labial palpus 3 (♂) to 4 (♀) times as long as diameter of eye. Fore wing : length 8.0–10.5 mm ; R_1 confluent with Sc ; ground-colour light yellowish cream dusted with brown scales ; pattern brown ; subterminal line well marked ; in specimens from the Philippines distinctly dentate and edged with silvery scales proximally ; in Formosan specimen a dark line without metallic scales ; discal dot indistinct ; median line traceable, with metallic scales in Formosan specimens ; terminal dots distinct ; fringe glossy. Hind wing whitish.

♂ genitalia (Text-fig. 31) : juxta-plate symmetrical, arms thin, moderate in length, hairy, rather excurved, without subapical teeth ; aedeagus with short ventral arm (hairy in Formosan specimens) ; a subapical long patch of thorns in aedeagus ; numerous rather small cornuti arranged in an elongate patch ; bulbous basal projection absent.

♀ genitalia (Text-fig. 34) : ostial pouch elongate, rather heavily sclerotized ; two distinct lamellate signa with median ridges.

This species shows considerable variation in size and coloration. *C. izuensis* was described from a single ♂. Because of an inaccurate diagnosis (Okano mentioned 'cornutus wanting') I have hitherto considered *izuensis* as a distinct species. I have had no opportunity to examine the holotype. However, recently I have received from Dr H. Inoue, in whose possession is the type of *izuensis*, the photomicrographs, which proved to be identical with those of *pulveratus*. Consequently I regard *izuensis* as a junior synonym of *pulveratus*. The holotype of *izuensis* was taken in Japan, Central Honshu, Shizuoka Pref., Kamo-gun, Nashimoto, 29.–31.vii.1957, leg. H. Inoue, in coll. Dr H. Inoue, Fujisawa, Japan.

Distribution. China, Szetschwan ; Japan, Honshu ; Formosa ; Philippines, Luzon ; Timor ; Sumatra.

Type material examined. *pulveratus*. Holotype ♂. 'Formosa, Kanshirei, 26.vii.1908, A. E. Wileman', GS-13016-BM, Paratypes. Formosa, Koanania, 1 ♂, GS-7662-BM ; Formosa, Takow, GS-7046-NM ; all in BM(BH).

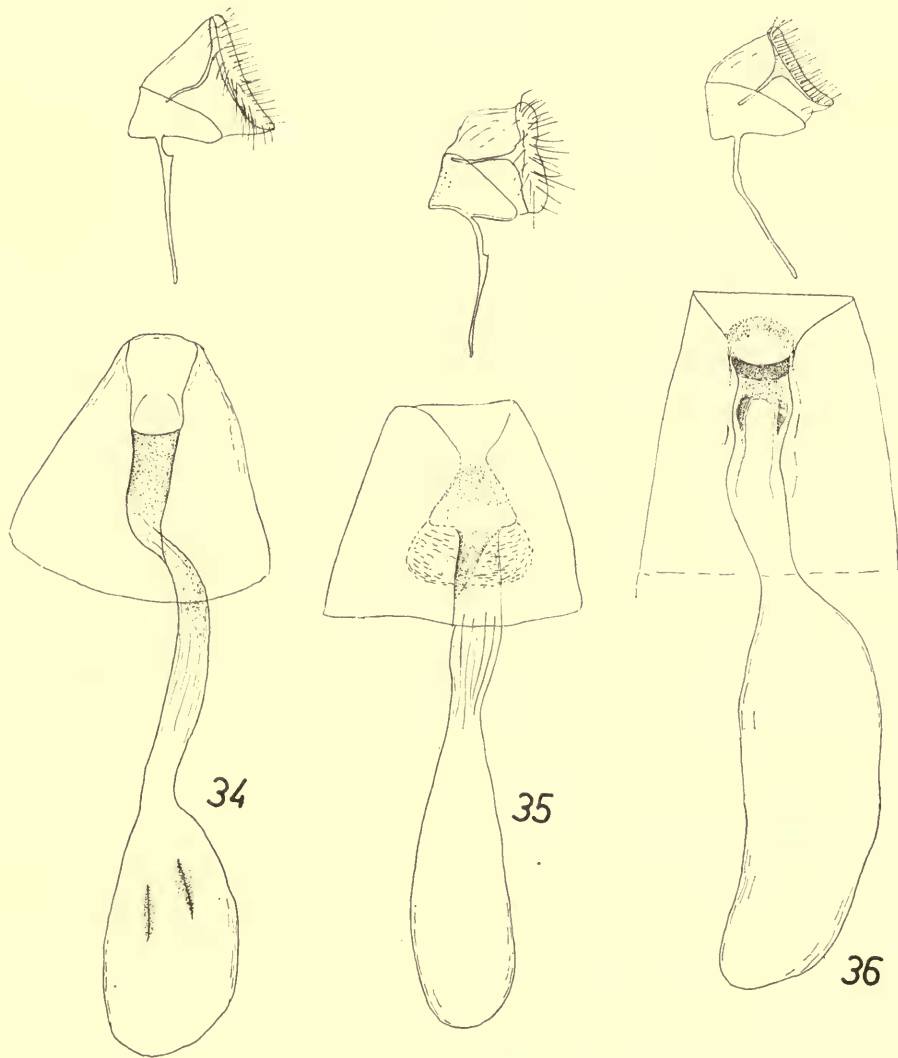
Other material. CHINA : Prov. Szetschwan, Chunking, 1 ♂, in BM(NH) ; PHILIPPINES : Luzon, Klondyke, 1 ♂ 1 ♀, in BM(BH) ; TIMOR : Oinanissa 1 ♀, in BM(NH) ; Oinanissa 1 ♀, in author's coll. ; SUMATRA : 1 ♀, in author's coll.

***Chilo bandra* (Kapur)**

(Text-figs 33, 35)

Chilotraea bandra Kapur, 1950 : 407, pl. 5, figs 6-9 [σ genitalia], 10 [φ genitalia].*Chilo bandra* (Kapur) Bleszynski & Collins, 1962 : 239.

Ocellus well developed. Face rounded, very slightly protruding forward beyond eye ; corneous point and ventral ridge both absent. Labial palpus 2 (σ) to 2.5 (φ) times as long as diameter of eye. Fore wing : length 5.0-8.5 mm ; R_1 coincident with Sc ; ground-colour



FIGS 34-36. *Chilo*, φ genitalia. 34, *pulveratus*, Philippine Is, Luzon. 35, *bandra*, India, paratype. 36, *tumidicostalis*, India.

yellowish ; subterminal line edged with steely shiny scales ; median line yellow with patch of silvery scales ; area between lines longitudinally streaked with brown. Hind wing whitish.

♂ genitalia (Text-fig. 33) : basal proximal angle of valva produced and pointed ; juxta-plate with symmetrical, long, pointed, hairy arms ; aedeagus with short and thin ventral arm ; bulbous basal projection present.

♀ genitalia (Text-fig. 35) : genital opening surrounded by small rough, moderately sclerotized area ; one small signum present.

Distribution. India, Bombay.

Type material examined. Holotype ♂. '[India] : Bombay, Bandra, 20.vi.02', GS-7177-BM, in BM(NH).

Paratypes. 1 ♂, same data, GS-596-BM, in author's coll. ; 1 ♀, same data, GS-595-BM, in BM(NH).

Chilo tumidicostalis (Hampson)

(Pl. 1, fig. 7 ; Text-figs 32, 36)

Argyria tumidicostalis Hampson, 1919 : 448.

Chilo gemininotalis Hampson, 1919 : 59 [syn. Fletcher, 1928 : 59].

Chilo gemininotalis Hampson ; Fletcher, 1928 : 59.

Chilo tumidicostalis (Hampson) Kapur, 1950 : 401, pl. 1, fig. 5 [head], pl. 2, fig. 5 [♂ genitalia], pl. 3, figs 3, 9 [♂ genitalia], 11 [♀ genitalia].

Chilo tumidicostalis (Hampson) ; Bleszynski, 1969 : 14, figs 2 [♂ genitalia], 35 [♀ genitalia].

Ocellus well developed. Face moderately produced forward, with corneous point, which, in some specimens, is only poorly developed ; ventral ridge absent. Labial palpus 2.5 (♂) to 3.5 (♀) times as long as diameter of eye. Fore wing : length 9.0-10.5 mm ; R_1 free ; ground-colour dull grey to brown ; with dark shade from base to short distance beyond cell ; number of dark scales scattered irregularly over wing except on area immediately below longitudinal shade and along margin ; transverse lines absent ; terminal dots present, alternating with small white dots ; fringe shiny brown. Hind wing silky white.

♂ genitalia (Text-fig. 32) : valva with apex broadly rounded ; apical portion more heavily sclerotized than the remainder of the area ; costal portion densely clothed with minute hairs ; pars basalis absent ; juxta-plate symmetrical, arms long, apically rounded, each armed with strengthening, provided with two distinct, widely separated teeth ; ventral arm of aedeagus deeply notched, rounded, its dorsal margins clothed with minute hairs subapically and near base ; vesica with numerous tiny spikes, but without distinct cornutus.

♀ genitalia (Text-fig. 36) : ostium pouch poorly demarcated from ductus bursae, with heavily sclerotized caudal ring and two rather heavily sclerotized bars at sides ; signum absent.

C. tumidicostalis is reported to feed exclusively on sugar-cane. Descriptions of the larva and pupa are given by Fletcher and Ghosh (1920), Isaac and Rao (1941) and Isaac and Venkatraman (1941).

Distribution. India, Bengal and Assam ; Nepal.

Type material examined. *tumidicostalis*. LECTOTYPE ♂ (present designation). 'Bengal, Pabna, 8.ix.1911. 1915-408. Sugar cane stem. *Platytes tumidicostalis* Hampson type ♂', GS-618-BM ; 1 ♂ paralectotype, same data but taken on 11.ix., both in BM(NH).

gemininotalis. Holotype ♀. 'India Coll. 721. Kanny Coory Cachar. July '07. *Chilo gemininotalis* Hmps. ♀ type', GS-619-BM, in BM(NH).

Other material. INDIA : Assam, 2 ♂, 1 ♀, in BM(NH) ; 1 ♂ in Canadian National Collection, Ottawa, Ont., Canada ; NEPAL : 1 ♀ in author's coll.

***Chilo auricilius* Dudgeon**

(Pl. 2, fig. 6 ; Text-figs 38, 43)

Chilo auricilia Dudgeon, 1905 : 405.

Diatraea auricilia (Dudgeon) Fletcher, 1928 : 58.

Diatraea auricilia (Dudgeon) ; Gupta, 1940 : 799, fig. 3 [larva], pl. 36, fig. 2 [wing venation].
pl. 37, figs 3, 4 [♂ genitalia].

Chilotraea auricilia (Dudgeon) Kapur, 1950 : 408, pl. 5, figs 1-4 [♂ genitalia], 5 [♀ genitalia].

Chilo popescugorji Bleszynski, 1963 : 179, fig. 63 [♀ genitalia]. **Syn. n.**

Chilo auricilia Dudgeon ; Bleszynski & Collins, 1962 : 239.

Chilo auricilius Dudgeon ; Bleszynski, 1965 : 113, fig. 59 bis [larva and pupa], pl. 31, fig. 59 bis [imago], pl. 42, fig. 59 bis [♂ genitalia], pl. 93, fig. 59 bis [♀ genitalia].

Chilo auricilius Dudgeon ; Bleszynski, 1969 : 16, figs 4 [♂ genitalia], 37 [♀ genitalia].

Ocellus small but distinct. Face produced forward, smooth, or with small point; ventral ridge absent. Labial palpus 3 (♂) to 4 (♀) times as long as diameter of eye. Fore wing : length 8.0-13.0 mm, maximum width 3.0-4.0 mm ; R_1 confluent with Sc ; ground-colour yellow, in some instances brownish, variably irrorated with brown scales ; discal dot present ; subterminal line close to termen, represented by row of metallic scales ; median line concolorous with subterminal line ; few small silvery specks in middle of wing ; terminal dots large ; fringe shiny golden. Hind wing light brownish.

Coloration and pattern of fore wing is variable : in some specimens fore wing almost unicolorous yellow ; one examined specimen has very strongly developed silvery specks covering most of the wing surface ; sometimes the silvery specks are irregularly dispersed, while in other specimens they form two parallel transverse lines.

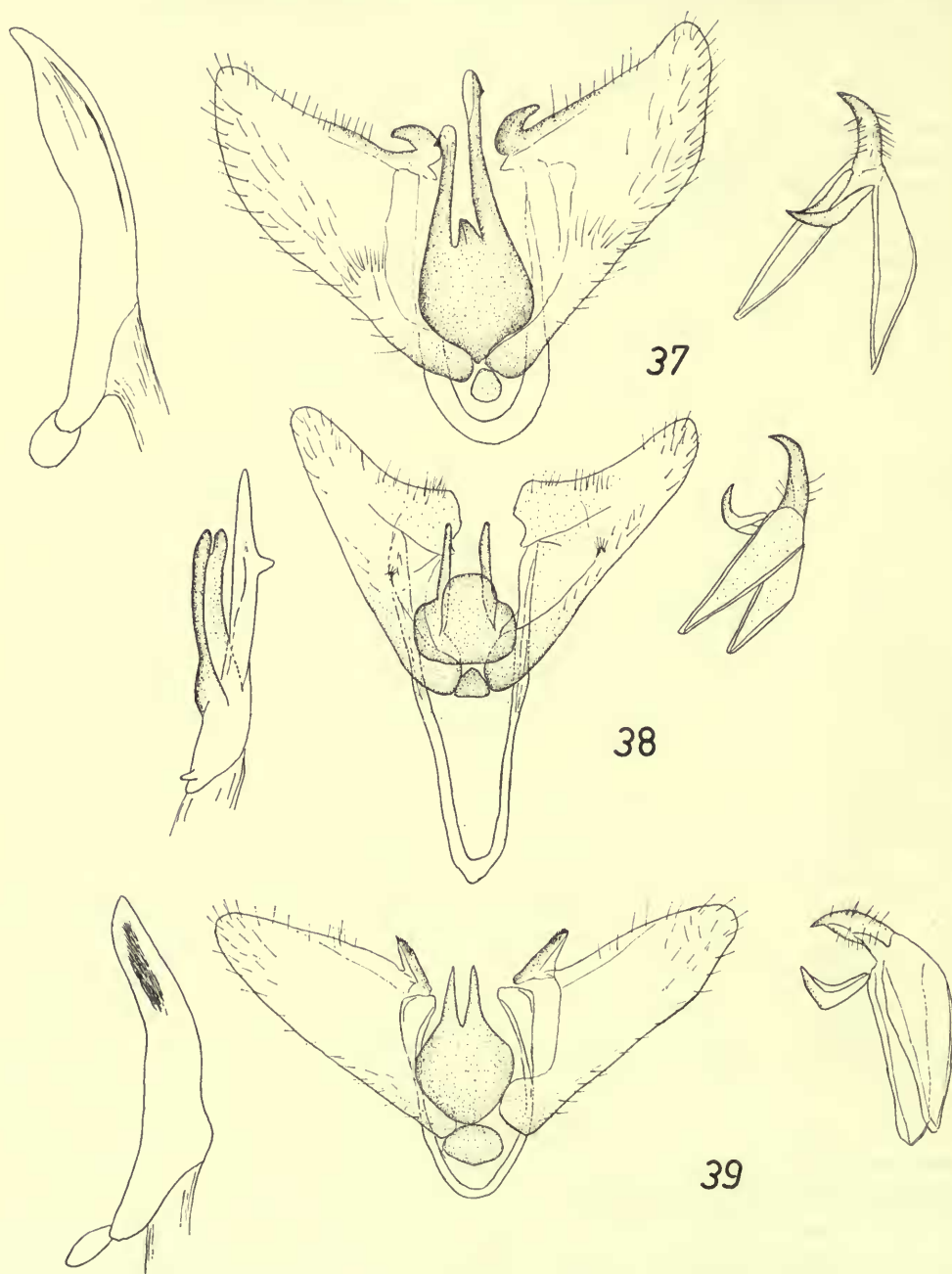
♂ genitalia (Text-fig. 38) : pars basalis absent ; saccus large ; juxta-plate with two symmetrical arms ending well before basal-costal angle of valva ; aedeagus with distinct, subapical conical projection ; ventral arm long, with notched apex ; bulbous basal projection small ; cornutus absent.

♀ genitalia (Text-fig. 43) : ostial pouch slightly demarcated from ductus bursae, moderately or heavily sclerotized ; small ; signum absent, but several examined specimens with a patch of scobinations or rather distinct irregularly shaped signum.

The life history of *auricilius* was dealt with by Fletcher and Ghosh (1920), (*Diatraea* sp., p. 389, pl. 55, fig. 1, larva, 2, pupa), Fletcher (1928) and Gupta (1940). The immature stages were figured by Isaac and Rao (1941 : 800, larva) and Isaac and Venkatraman (1941 : 809, pupa).

C. auricilius is a pest of sugar-cane in South-East Asia. It was also reported as feeding on rice, but the interpretation of the name *auricilius* has for a long time been in much confusion. Hampson (1912) sunk *auricilius* under *suppressalis*. Fletcher (1917) followed the Hampson synonymy, but in 1918 he regarded *auricilius* as a distinct species. However, in 1928, Fletcher stated that he made an error and that his '*auricilius*' was in fact '*Argyria sticticrasis*' (= *infuscatellus*). The true *auricilius* was named in Fletcher's paper as '*Diatraea* sp. '.

Distribution. India ; Nepal ; Formosa ; Philippines ; Thailand ; Indonesia, Moluccas, Celebes, Borneo, Sangir. The range of *auricilius* overlaps that of *polychrysus*, which is, in many instances, externally indistinguishable from *auricilius*. Both species are easily separable by the genitalia of both sexes.



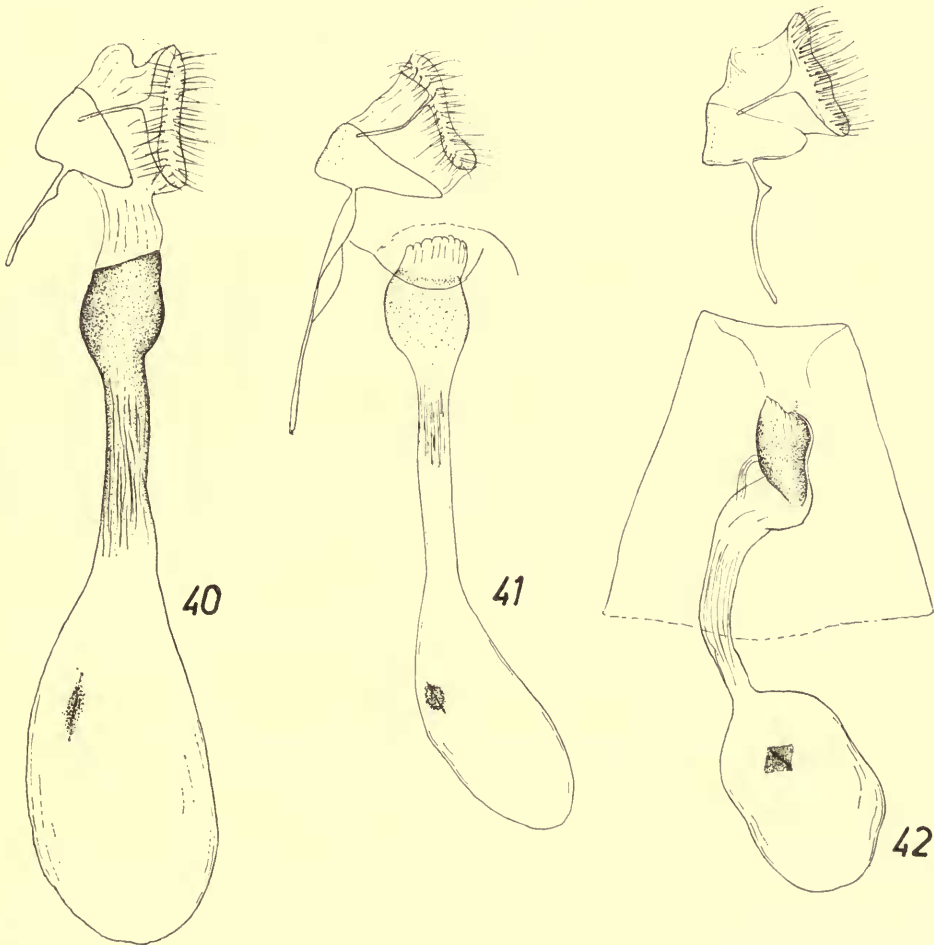
FIGS 37-39. *Chilo*, ♂ genitalia. 37, *ceylonicus*, Ceylon. 38, *auricilius*, Thailand. 39, *crypsimetallus*, Australia, Pt. Darwin, holotype.

Type material examined. *auricilius*. Holotype ♂. ' [India] Burogah N. Bihar (Mackenzie) ; Brit. Mus. 1905-70 ; *Chilo auricilius* type ♂ Dudgeon ', GS-8995-BM, in BM(NH).

popescugorji. Holotype ♀. ' Formosa ', GS-2043-SB, in Muzeul G. Antipa, Bucharest.

Paratypes, 3 ♀, same data, in Muzeul G. Antipa, Bucharest ; 1 ♀ paratype in author's coll.

Other material. INDIA : Pusa, 1 ♂, 3 ♀, in BM(NH) ; Darjeeling, 2 ♀, in Zoologische Sammlung d. Bayerischen Staates, Munich ; NEPAL : Rapti Tal, Megouli, 300 m, 29.iii.-4.iv., 5 ♀ ; Sunkosi, 2 ♀ ; Bhimpedi, 2 ♀, in Zoologische Sammlung d. Bayerischen Staates, Munich ; PHILIPPINES : Luzon, 2 ♂ in United States National Museum, Washington, D.C. ; MOLUCCAS : Ternate, 1 ♀, in BM(NH) ; CELEBES :



FIGS 40-42. *Chilo*, ♀ genitalia. 40, *ceylonicus*, China, Tongking, holotype of *torquatellus*, 41, *ceylonicus*, Ceylon. 42, *ceylonicus*, Hainan.

Paloe, 1 ♂, x, in BM(NH); SANGIR : 1 ♀, in BM(NH) ; BORNEO : Pulo Laut, 1 ♀, in BM(NH) ; THAILAND : Krabi, 2 ♀, in Zoologische Sammlung d. Bayerischen Staates, Munich ; Krabi, 1 ♀, in author's coll.

Chilo ceylonicus Hampson

(Pl. 3, fig. 14 ; Text-figs 37, 40-42)

Chilo ceylonica Hampson, 1896b : 957.

Chilo torquatellus J. de Joannis, 1930 : 602, pl. 3, fig. 12. **Syn. n.**

Chilotraea ceylonicus (Hampson) Kapur, 1950 : 406, pl. 4, figs 6 [head], 7-9, 11 [♂ genitalia], 10 [♀ genitalia].

Chilo ceylonica Hampson ; Bleszynski & Collins, 1962 : 239.

Ocellus well developed. Face rounded, moderately protruding forward beyond eye ; cornous point and ventral ridge both absent. Labial palpus 3 (♂) to 3.5 (♀) times as long as diameter of eye. Fore wing : length 9.0-12.0 mm ; R_1 confluent with Sc ; ground-colour straw-yellow, beige or brown ; subterminal line silvery, without sub-dorsal tooth ; median line yellowish, edged with brown and silvery scales ; some scattered silvery scales in basal and medial areas ; holotype of *torquatellus* dark brown with median line reduced but rather distinct discal dot. Hind wing white to dirty white.

♂ genitalia (Text-fig. 37) : pars basalis small but distinct ; juxta-plate asymmetrical arms unequal in length, each arm with a subapical blunt knob ; aedeagus with bulbous basal projection but without ventral arm ; cornutus absent.

♀ genitalia (Text-figs. 40-42) : ostial pouch moderately or heavily sclerotized, rather variable in shape, well demarcated from ductus bursae, bulbous ; one lamellate signum with median ridge.

C. torquatellus is probably an extreme colour variation of *ceylonicus* and is here sunk under *ceylonicus*. It was described from a single ♀ from Tong-king. Biology of *ceylonicus* is unknown.

Distribution. Ceylon ; Tong-king ; Hainan.

Type material examined. *ceylonicus*. LECTOTYPE ♂ (present designation). 'Ceylon, 95-37 ; Hambantota ; *Eromene ceylonica* Type ♂ Hampson', GS-586-BM ; 1 ♀ lectoparatype, same data, both in BM(NH).

torquatellus. Holotype ♀. 'Tong-king Phu-tho-far, Juillet', GS-3655-Viette, in Muséum National d'Histoire Naturelle, Paris.

Other material. CEYLON : Hambantota, Hapusale, Gampola and Madulsima, 5 ex., in BM(NH) ; HAINAN : 1 ♀, in author's coll.

Chilo crypsimetallus (Turner) comb. n.

(Pl. 5, fig. 2 ; Text-figs 39, 44, 45)

Nephelia crypsimetalla Turner, 1911 : 114.

Diatraea ochrileucalis Hampson, 1919 : 547. **Syn. n.**

Chilo ochrileucalis (Hampson) Bleszynski, 1962 : 19, figs 12 [♂ genitalia], 24 [♀ genitalia].

Ocellus well developed. Face broadly rounded ; corneous point and ventral ridge both absent. Labial palpus 2.5 (♂) to 3.5 (♀) times as long as diameter of eye. Fore wing : length 7.5-10.5 mm ; ground-colour dull light brown to dirty yellow, variably dusted with brown ; discal dot distinct ; subterminal line ill-defined, often reduced in costal half, formed by row of

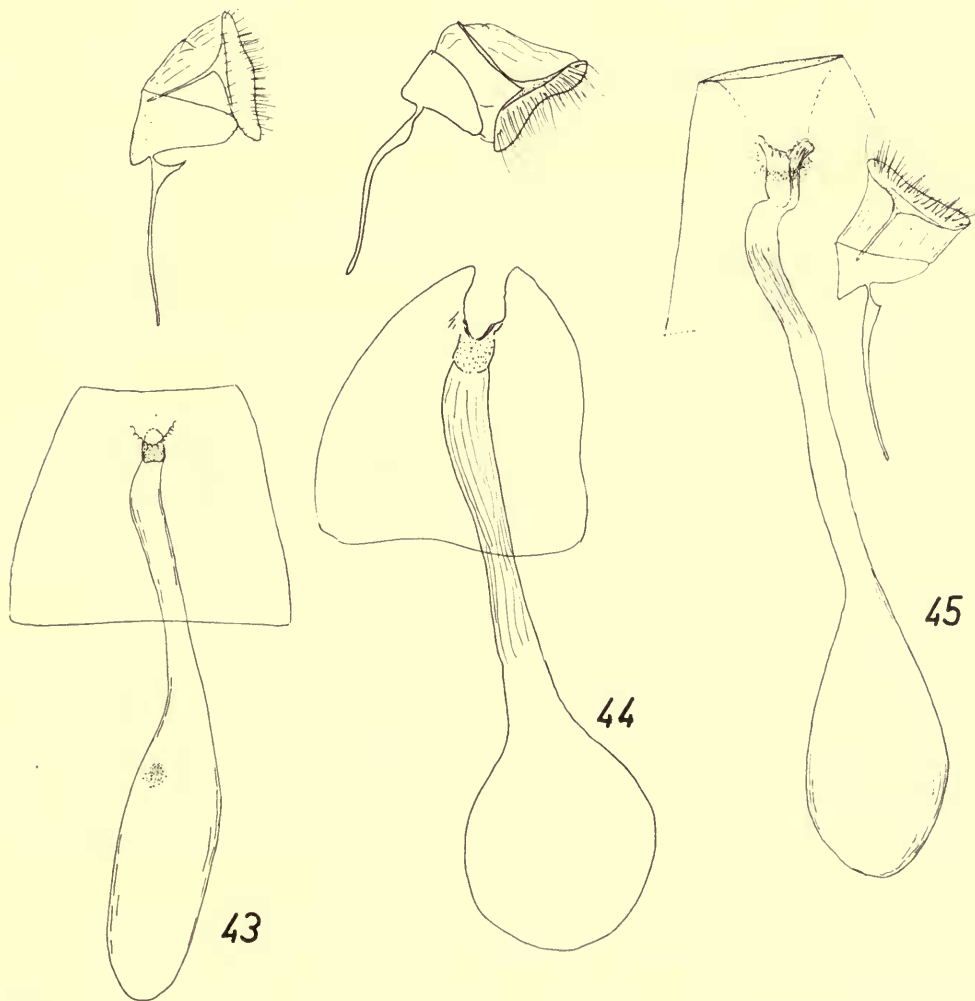
metallically shiny silvery scales ; a small patch of silvery scales well above dorsum in the middle of wing ; terminal dots distinct. Hind wing light brownish to silky white.

♂ genitalia (Text-fig. 39) : pars basalis distinct, armed with numerous small bristles ; juxta-plate ovate, with rather short, equally long, tapering pointed arms ; aedeagus with bulbous basal projection ; ventral arm absent ; large patch of small cornuti present.

♀ genitalia (Text-figs 44, 45) : ostial pouch slightly demarcated from dustus bursae, rather lightly sclerotized ; no signum.

Distribution. Australia, Northern Territory, Queensland, Prince of Wales I.

This is the only species of *Chilo* known to occur in Australia. The specimens from Prince of Wales I. are larger and lighter coloured than the typical *crypsimetallus* ;



FIGS 43-45. *Chilo*, ♀ genitalia. 43, *auricilius*, Thailand. 44, *crypsimetallus*, Australia, Cedar Bay, holotype of *ochrileucalis*. 45, ? *crypsimetallus*, Australia, Prince of Wales I.

all these are females and have the genitalia slightly different from Queensland specimens. Perhaps a distinct species is involved ; only discovery of a male from Prince of Wales I. may solve the problem.

The female genitalia are similar to those in *terrenellus* and *louisadalis*, which, however, have small ocelli and no metallic scales on the fore wing. The ranges of *crypsimetallus* and the latter two do not overlap.

Type material examined. *crypsimetallus*. Holotype ♂. '[Australia, Northern Territory] P. Darwin, Dec. '08. F. P. Dodd', GS-4901-SB, in Commonwealth Scientific and Industrial Research Organization, Division of Entomology, Canberra.

ochrileucalis. Holotype ♀. '[Australia, Queensland] Cedar Bay, s. of Cooktown, Meek, 97-23 ; *Diatraea ochrileucalis* ♀ Type Hmpsn.', GS-11154-BM, in BM(NH).

Other material. AUSTRALIA : Cedar Bay, Queensland, 1 ♂, in BM(NH) ; 1 ♀ in author's coll. ; Prince of Wales I., 5 ♀, in Cornell University, Ithaca, N.Y., U.S.A. and in author's coll.

Chilo polychrysus (Meyrick)

(Pl. 2, fig. 4 ; Pl. 3, fig. 15 ; Text-figs 46, 47, 52)

Diatraea polychrysa Meyrick, 1932 : 321.

Proceras polychrysa (Meyrick) Kalshoven, 1950 : 413, figs 229, 235a [pupa], 236 [larva].

Chilotraea polychrysa (Meyrick) Martin, 1954 : 120, figs 9 [♂ genitalia], 18 [♀ genitalia].

Chilo polychrysa (Meyrick) Bleszynski, 1962b : 115, fig. 5 [♂ genitalia].

Head similar as in *auricilius*, except for labial palpus which is proportionately slightly shorter in *polychrysus*. Fore wing : length 6.7-7.5 mm ; R_1 confluent with Sc ; ground-colour varying from whitish to yellow variably suffused with ochreous brown scales ; median line a distinct, oblique, ochreous brown shade with median line represented by shiny silvery scales ; discal dot reduced ; subterminal line ill-defined, white, with a few silvery scales ; area between both transverse lines darkened with ochreous brown below costa ; subterminal area darkened ; terminal dots ill-defined or absent ; fringes slightly glossy. Hind wing varying from white to dirty cream, with apical area slightly suffused with darker colour ; fringe whitish.

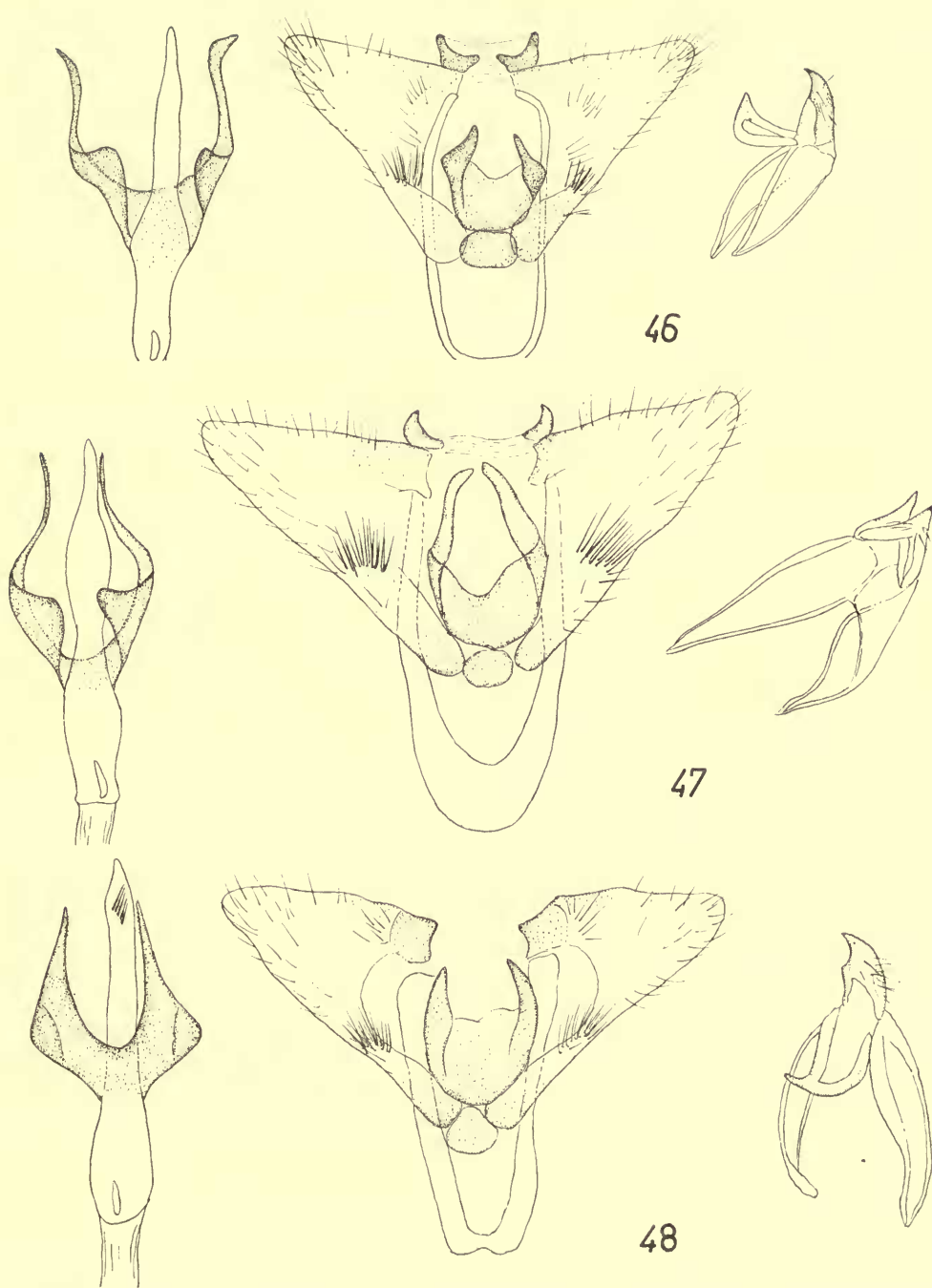
♂ genitalia (Text-figs 46, 47) ; valva decidedly tapering to a narrowly rounded apex ; bunch of stout hairs close to ventral margin at one-third distance from base ; distinct, rather heavily sclerotized, notched pars basalis ; juxta-plate with arms short, tapering, nearly symmetrical ; aedeagus a little longer than valva ; ventral process of aedeagus bifurcate into two long, narrow arms, each arm with subbasal flap and minute subapical dentation ; cornuti absent.

♀ genitalia (Text-fig. 52) ; seventh sternum with rather heavily sclerotized area surrounding ostium bursae, with long band posteriorly divided longitudinally in some specimens ; ostial pouch slightly demarcated from ductus bursae, armed with small sclerite at either side ; ductus bursae behind ostial pouch with a short, rather heavily sclerotized portion, then lightly sclerotized, sometimes swollen in caudal portion ; signum absent.

Some of the examined adults were bred from stem of 'paoli'.

Distribution. India, Assam ; Thailand ; Indonesia, Malacca ; Malaysia ; South China, Kanton.

Externally this species comes very close to *auricilius*, but it is easily separated by the genitalia of both sexes as is shown in the figures. Similarities in the genitalia



FIGS 46-48. *Chilo*, ♂ genitalia. 46, *polychrysus*, Malaya, paralectotype. 47, *polychrysus*, Malaya, paralectotype. 48, *lousiadalis*, Vulcan I.

suggest that *polychrysus* comes very near *terrenellus* and *lousiadalis*, from which it differs by the presence of the pars basalis of the valva and the lack of cornuti ; moreover, *polychrysus* has more strongly tapered valva, a differently shaped ventral arm of aedeagus and a smaller juxta-plate. In the ♀ genitalia *polychrysus* is distinguished by the heavily sclerotized area surrounding ostium bursae. Externally *polychrysus* is readily separated from *terrenellus* and *lousiadalis* by the presence of metallic scales on the fore wing, the much smaller size and the yellow coloration of the fore wing. The ranges of *polychrysus*, *terrenellus* and *lousiadalis* do not overlap. The ranges of *polychrysus* and *auricilius* overlap in Indonesia, Thailand and Assam, India.

Type material examined. LECTOTYPE ♂ (present designation). 'Malaya Pen. Malacca 8.i.1925. Larvae boring stems of Paoli. G. H. Corbett and B. A. R. Gater', GS-10313-BM, in BM(NH).

Paralectotypes. 15 ♂♀, Perak, Selangor, Alor Star, Sungei Tua, Kuan, Parit Buntar, Titi Serong, Pekan, Sungai Kepar, Malaysia, in BM(NH) and in author's coll.

Other material. INDONESIA : Kuala Lumpur, 15 ex., in BM(NH) ; THAILAND : Bangkok, 5 ♀, in BM(NH) ; INDIA : Assam, 1 ♀, in BM(NH) ; Khasis, 1 ♀, in BM(NH).

Chilo lousiadalis (Hampson)

(Pl. 4, figs 4, 7 ; Text-figs 48, 49, 53)

Diatraea lousiadalis Hampson, 1919 : 545.

Chilo lousiadalis (Hampson) Bleszynski, 1962b : 119, fig. 6 [♂ genitalia].

Ocellus small. Face broadly rounded, very slightly protruding forward beyond eye ; corneous point and ventral ridge both absent. Labial palpus 3 (♂) to 4 (♀) times as long as diameter of eye. Fore wing : length 9.0–15.0 mm ; R_1 confluent with Sc ; ground-colour dull yellow-brown, markings brown ; a brown shade from apex, obliquely to discal dot, the latter in most instances very distinct ; wing longitudinally indistinctly streaked with brown ; subterminal line and median line present ; subterminal line a row of brown specks, rather distant from termen ; subdorsal tooth absent ; median line a brown shade ; discal dot present ; terminal dots present ; fringe slightly glossy. Hind wing varying cream to brown.

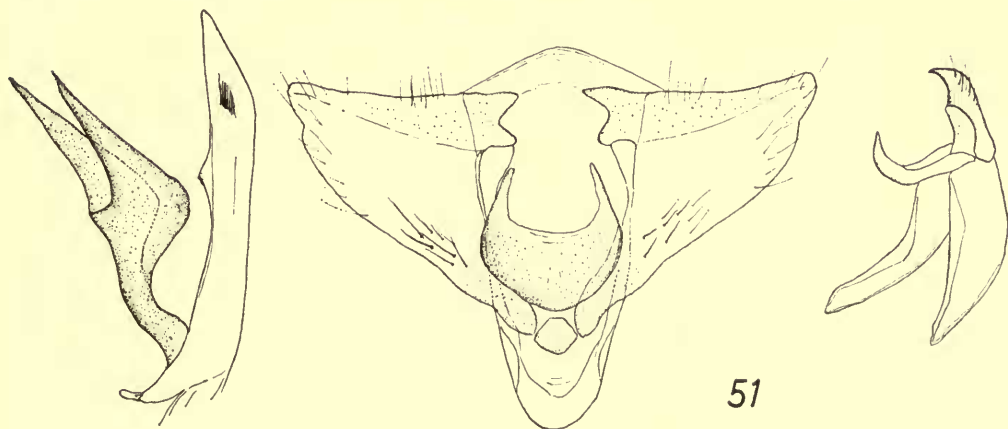
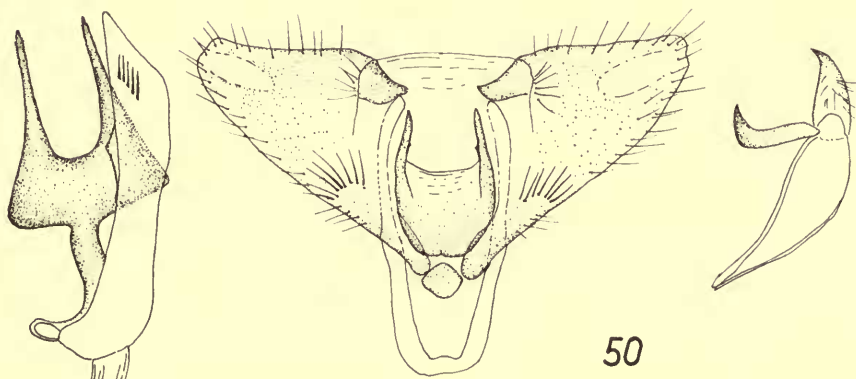
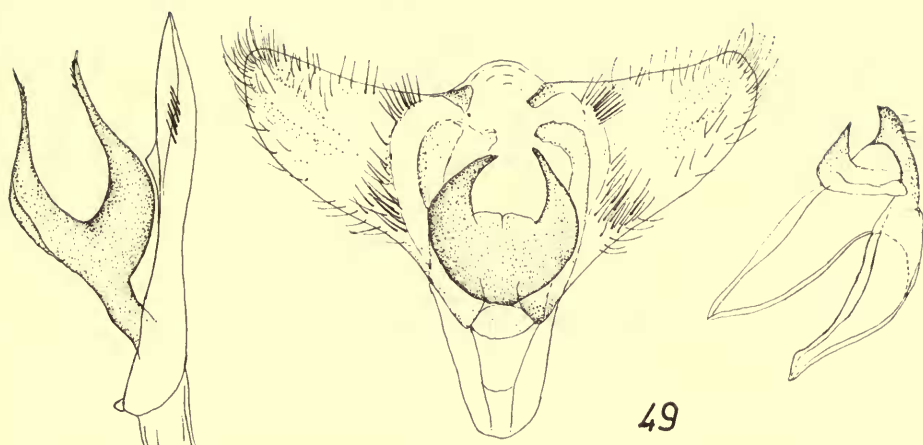
♂ genitalia (Text-figs 48, 49) : pars basalis absent ; hairs stout ; juxta-plate broad, with arms of equal length, rather short, without subapical teeth ; aedeagus with bulbous basal projection rather small ; ventral arm very strong, from near base of aedeagus ; its basal portion stem-like, narrow, the distal part very broad, tapering, with two long, thin, pointed arms of equal length ; basal margin of arm oblique ; a row of small cornuti present.

♀ genitalia (Text-fig. 53) : seventh sternite without a heavily sclerotized plate ; ostial pouch small, rather heavily sclerotized, well demarcated from ductus bursae ; signum absent.

Host plant of the larva is unknown.

Distribution. Louisiade Archipelago ; New Guinea ; Vulcan Island.

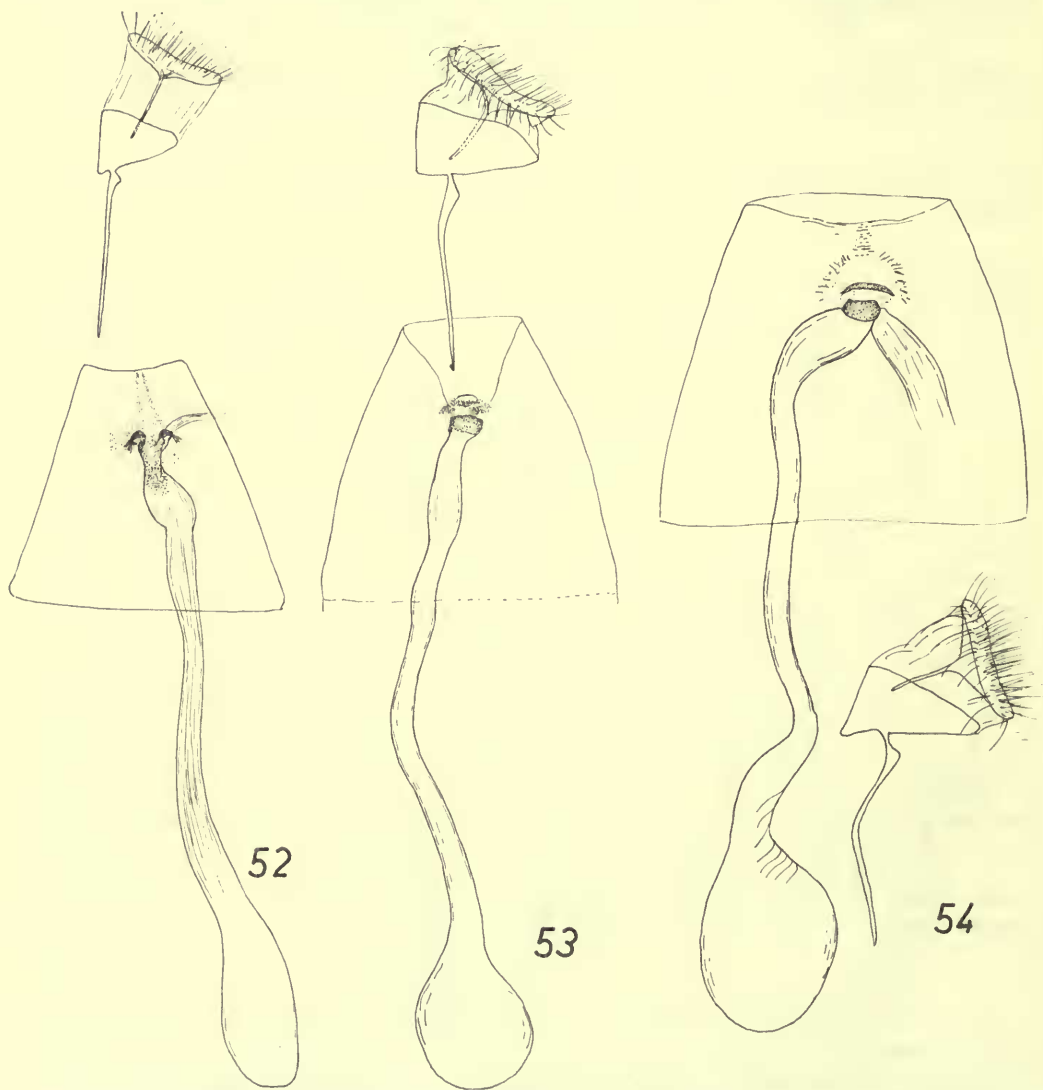
This species is very close to *terrenellus*, which has no longitudinal streaks on the fore wing ; in ♂ genitalia the basal margin of the arms of the ventral arm of the aedeagus is almost perpendicular to the stem, being oblique in *lousiadalis*. The ♀ genitalia of the two species are nearly indistinguishable from each other, however,



FIGS 49-51. *Chilo*, ♂ genitalia. 49, *lousiadalis*, Louisiade Arch. 50, *terrenellus*, Vulcan I. 51, *terrenellus*, Papua, New Britain.

generally the semi-circular sclerite near the ostium bursae in *lousiadalis* is rather better developed, broader than in *terrenellus*, and the ductus seminalis is narrower than in *terrenellus*. Another close species is *polychrysus*, which, however, has metallic scales on the fore wing and is very easy to separate from *lousiadalis*. The ranges of both *lousiadalis* and *terrenellus* overlap.

Type material examined. Holotype ♂. '[Louisiade Archipelago] St. Aignan, Nov.1897, Meek ; *Diatraea lousiadalis* type ♂ Hmps. ', abdomen missing, in BM(NH).



FIGS 52-54. *Chilo*, ♀ genitalia. 52, *polychrysus*, India, Assam. 53, *lousiadalis*, Dutch New Guinea. 54, *terrenellus*, Papua, New Britain.

Other material. LOUISIADE ARCHIPELAGO : St. Aignan, 1 ♀, in BM(NH) ; NEW GUINEA: Hydrographer Mts., 2500', 1 ♀, in BM(NH) ; Morobe District, Wan and Padwi, 6 ♂, 8 ♀, in Canadian National Collection, Ottawa, Ont., Canada ; VULCAN ISLAND : 1 ♂, 1 ♀, in BM(NH).

***Chilo terrenellus* Pagenstecher**

(Pl. 1, fig. 10 ; Pl. 4, figs 2, 3 ; Text-figs 50, 51, 54)

Chilo terrenellus Pagenstecher, 1900 : 160.

Chilotraea terrenellus (Pagenstecher) Martin, 1954 : 120, figs 10 [♂ genitalia], 17 [♀ genitalia].

Chilo terrenellus Pagenstecher ; Bleszynski, 1962b : 7, fig. 7 [♂ genitalia].

Ocellus vestigial or small. Face similar to that in *lousiadalis*. Labial palpus 3 (♂) to 4 (♀) times as long as diameter of eye. Fore wing : length 12.5–18.0 mm ; R_1 confluent with Sc ; coloration rather similar as in *lousiadalis*, but longitudinal streaks absent ; some specimens very dark brown. Hind wing varying from dirty white to grey.

♂ genitalia (Text-figs 50, 51) : generally similar to those in *lousiadalis*, but with basal edge of the main part of the ventral arm of the aedeagus almost perpendicular to the stem.

♀ genitalia (Text-fig. 54) : very similar to those in *lousiadalis* ; for more details see under *lousiadalis*.

Distribution. New Guinea ; Bismarck Archipelago ; Vulcan Island.

Type material examined. Lectotype ♀ (selected by Martin, 1954 : 120). ' [Bismarck Archipelago] Neu Pommern C. Ribber ', in Institut f. Spezielle Zoologie, Berlin.

Paralectotypes. 1 ♀, same data, GS-7663-BM, in BM(NH) ; 1 ♀, same data, GS-759-SB, in Institut f. Spezielle Zoologie, Berlin.

Other material. NEW GUINEA : 2 ♂, 1 ♀, in BM(NH) ; Mt. Goliath, 1 ♂, in author's coll. ; 4 ♀, in Canadian National Collection, Ottawa, Ont., Canada ; NEW BRITAIN : 2 ♂, 1 ♀, in Canadian National Collection, Ottawa, Ont. ; VULCAN ISLAND : 7 ex., in BM(NH) and author's coll.

***Chilo agamemnon* Bleszynski**

(Pl. 2, fig. 7 ; Pl. 4, fig. 10 ; Text-figs 8, 5, 58)

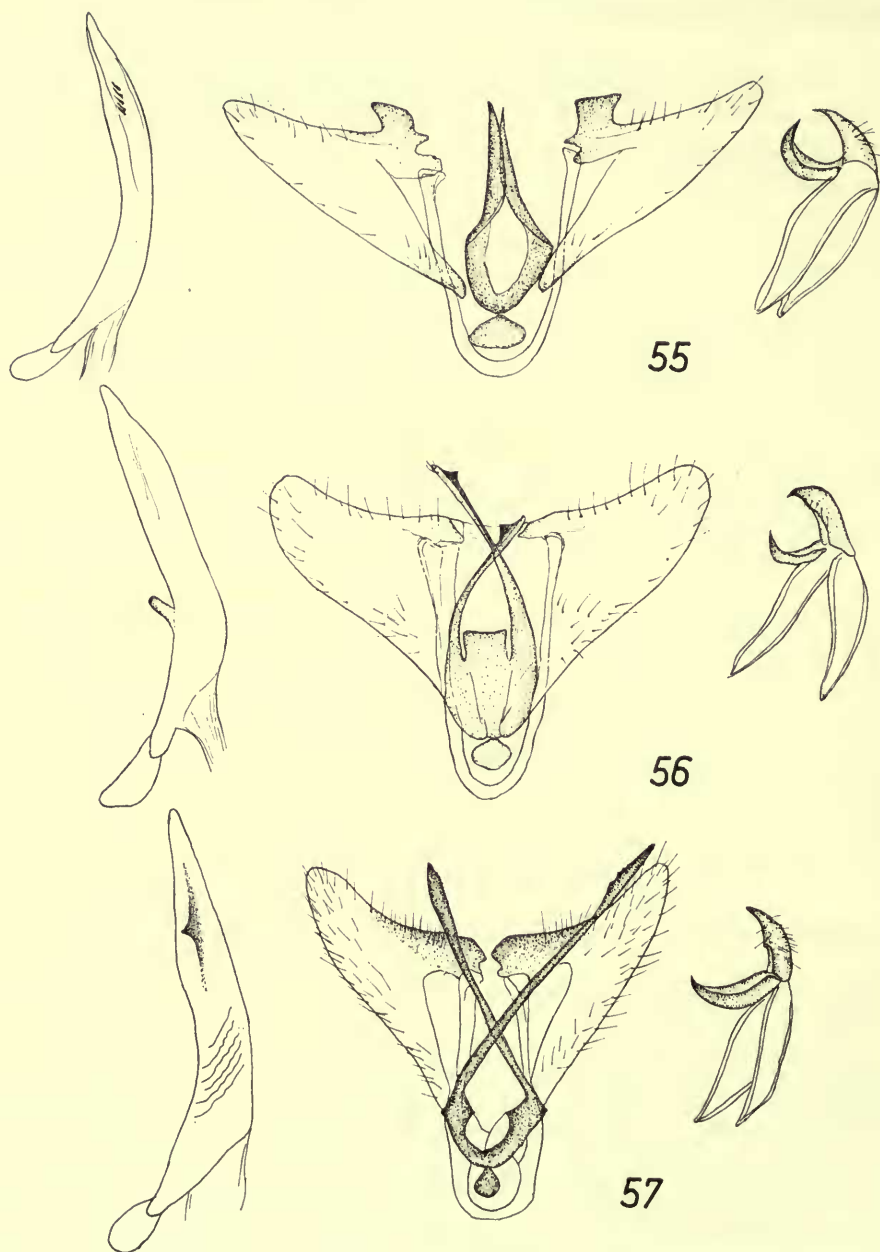
Chilo agamemnon Bleszynski, 1962b : 119, figs 13 [♂ genitalia], 28 [♀ genitalia], pl. 13, fig. 6 [adult].

Chilo agamemnon Bleszynski ; Bleszynski, 1965 : 122, pl. 5, figs 64–1, 2 ; pl. 43, fig. 64 [♂ genitalia], pl. 94, fig. 64 [♀ genitalia].

Chilo simplex (Butler) ; auct. in part. [mis-identifications].

Ocellus well developed. Face broadly rounded, slightly protruding forward beyond eye ; corneous point and ventral ridge both absent. Labial palpus 3 (♂) to 4 (♀) times as long as diameter of eye. Fore wing : length 8.0–14.5 mm ; R_1 free ; ground-colour dull yellow to brown ochreous ; subterminal line rather distinct in ♂, reduced in ♀, brown, weakly dentate, excurved, without subdorsal tooth ; median line present in ♂, ill-defined or absent in ♀ ; discal dot present, but diffused or absent in some specimens : a well developed brown shade extending obliquely from apex to discal dot ; terminal dots present. Hind wing glossy cream greyish to silky white.

♂ genitalia (Text-fig. 55) : pars basalis distinct, pointed, minutely toothed ; arms of juxtaplate equally long, gradually tapering to points, without subbasal teeth ; aedeagus distinctly



FIGS 55-57. *Chilo*, ♂ genitalia. 55, *agamemnon*, Uganda. 56, *diffusilineus*, Northern Rhodesia. 57, *zacconius*, Senegal, holotype.

curved, bulbous basal projection present ; ventral arm absent ; row of minute cornuti present. ♀ genitalia (Text-fig. 58) : ostial pouch well demarcated from ductus bursae, bowl-shaped, rather lightly sclerotized, with wrinkled margins ; with lateral projection with a heavily sclerotized patch ; signum absent.

Distribution. Israel ; north Egypt ; Sudan ; Uganda.

In Israel this species is an important pest of maize and other cereal crops. In Uganda, specimens of *agamemnon* were bred from Esege (*Vossia cuspidata*). The specimens bred in Israel emerged from June to December, but those from Uganda in April and September ; the specimens from Sudan were taken in February. The species has three or four broods a year. For details on biology of *agamemnon* see Rivnay, 1963 and 1967.

C. agamemnon has for a long time been recorded from the Near East as '*Chilo simplex* Butler' (synonym of *suppressalis*), which does not occur in the Near East. This species seems to have spread northward in Israel during past several years. It is rather similar externally to *diffusilineus* and *zacconius*, which are also characterized by an oblique shade running from the apex of the fore wing. So far *zacconius* is known only from the west coast of Africa ; it is easily separable from *agamemnon* by the genitalia of both sexes as is shown in the figures. The ranges of *agamemnon* and *diffusilineus* overlap in Sudan, but the two species are perfectly distinct on the genitalia of both sexes, as is shown in the figures.

Type material examined. Holotype ♂. '[Egypt] Gemmaiza, 2.9.31', GS-9184-Mus. Vind., in Naturhistorisches Museum, Vienna.

Paratypes. 1 ♂, 1 ♀, Egypt, in Naturhistorisches Museum, Vienna ; 1 ♂, 1 ♀, Egypt, in author's coll. ; 2 ♀, Cairo, Egypt, coll. Amsel, Karlsruhe.

Other material. ISRAEL : Beer Tuvia, 2 ♂, 3 ♀, in author's coll. ; Rehovot, 5 ex., in Mahon Vulcani, Bet-Dagan, Israel. SUDAN : Malek, 2 ♀, Kosti, White Nile, 1 ♀, in BM(NH) ; UGANDA : Tirynyi, 1 ♂, 2 ♀, in Commonwealth Institute of Biological Control, Kampala, Uganda, and in author's coll.

Chilo diffusilineus (J. de Joannis)

(Pl. 2, figs 10, 11 ; Text-figs 56, 59-61)

Diatraea diffusilinea J. de Joannis, 1922 : 194, pl. 8, fig. 5.

Chilo phaeosema Martin, 1958 : 189, figs 2 [♂ genitalia], 6 [♀ genitalia], pl. 6, fig. 4 [adult]

Syn. n.

Chilo diffusilineus (J. de Joannis) Bleszynski, 1963 : 113.

Similar to *agamemnon*. Fore wing : length 8.0-13.0 mm ; R_1 free ; ground-colour varying from orange-yellow to dirty yellow.

♂ genitalia (Text-fig. 56) : pars basalis absent ; juxta-plate with two long arms of equal length, but in some specimens the right arm shorter than the left arm ; each arm provided with a distinct, subapical tooth and several short hairs ; aedeagus with basal part curved ; bulbous basal projection varying in size, ventral arm very short ; cornuti absent.

♀ genitalia (Text-figs 59-61) : ostial pouch very well demarcated from ductus bursae ; heavily sclerotized, produced as a long, heavily sclerotized rod into ductus bursae ; in some specimens, a distinct, lateral, thorn-like projection ; signum absent.

Distribution. Sudan ; Ethiopia ; Rhodesia ; Tanzania ; Mozambique ; Guinea ; Senegal ; Nigeria ; Sierra Leone.

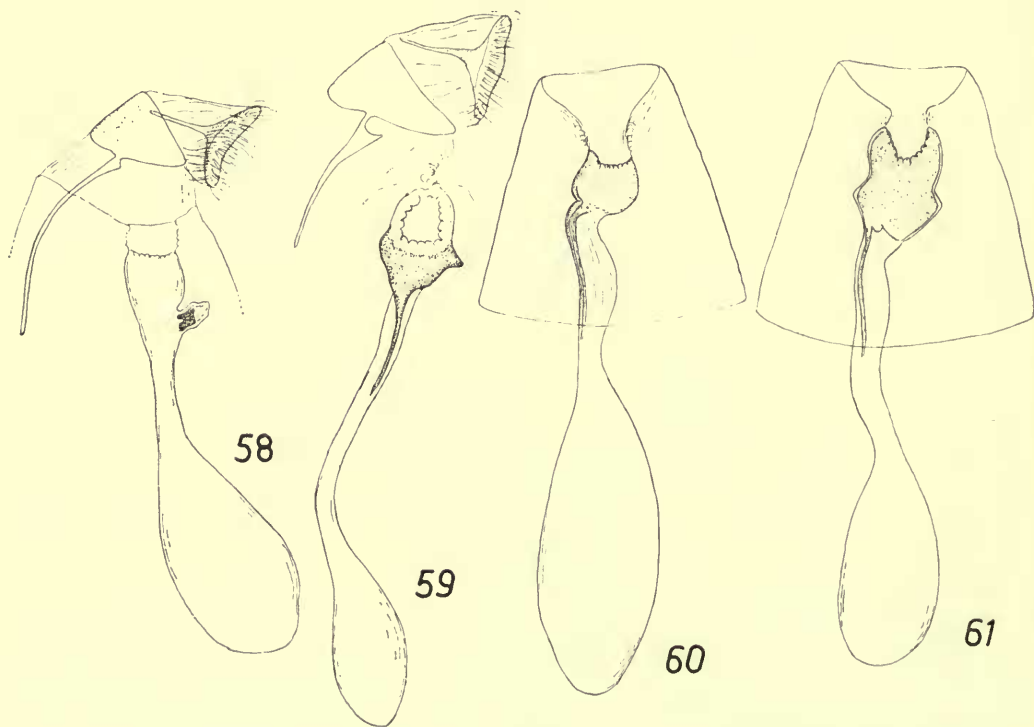
C. diffusilineus is very similar externally to *agamemnon* and *zacconius*, but it is easily distinguishable on the genitalia of both sexes as is shown in the figures. The ranges of *diffusilineus* and *zacconius* overlap in West Africa, and those of *diffusilineus* and *agamemnon* in Sudan. The specimens from Rhodesia are much darker and brighter orange-yellow than from any other locality. The species is rather variable in both external appearance and the genitalia of both sexes.

Type material examined. *diffusilineus*. Holotype ♀. '[Mozambique] Makulane, xii.07-i.08 ; Type ; *Diatraea diffusilinea* ♀ de Joannis', GS-2837-SB, in Muséum d'Histoire Naturelle, Geneva.

phaeosema. Holotype ♂. '[Rhodesia] Makaholi. Rice borer. Dept. Agric. S. Rhodesia, 15.4.1955 ; holotype', GS-2607-BM, in BM(NH).

Paratypes. 1 ♀, same data as holotype, in BM(NH) ; 2 ♂, 1 ♀, Malawi, Mt. Mlanje, in BM(NH) and in author's coll.

Other material. SUDAN : White Nile, 1 ♂, 3 ♀, in BM(NH) ; ETHIOPIA : Ogolok and Drgira, 2 ♀, in BM(NH) ; RHODESIA : Lialui, 2 ♂, 2 ♀, in BM(NH) and in



FIGS 58-61. *Chilo*, ♀ genitalia. 58, *agamemnon*, Egypt, paratype. 59, *diffusilineus*, Southern Rhodesia, paratype of *phaeosema*, 60, *diffusilineus*, Senegal. 61, *diffusilineus*, Northern Rhodesia.

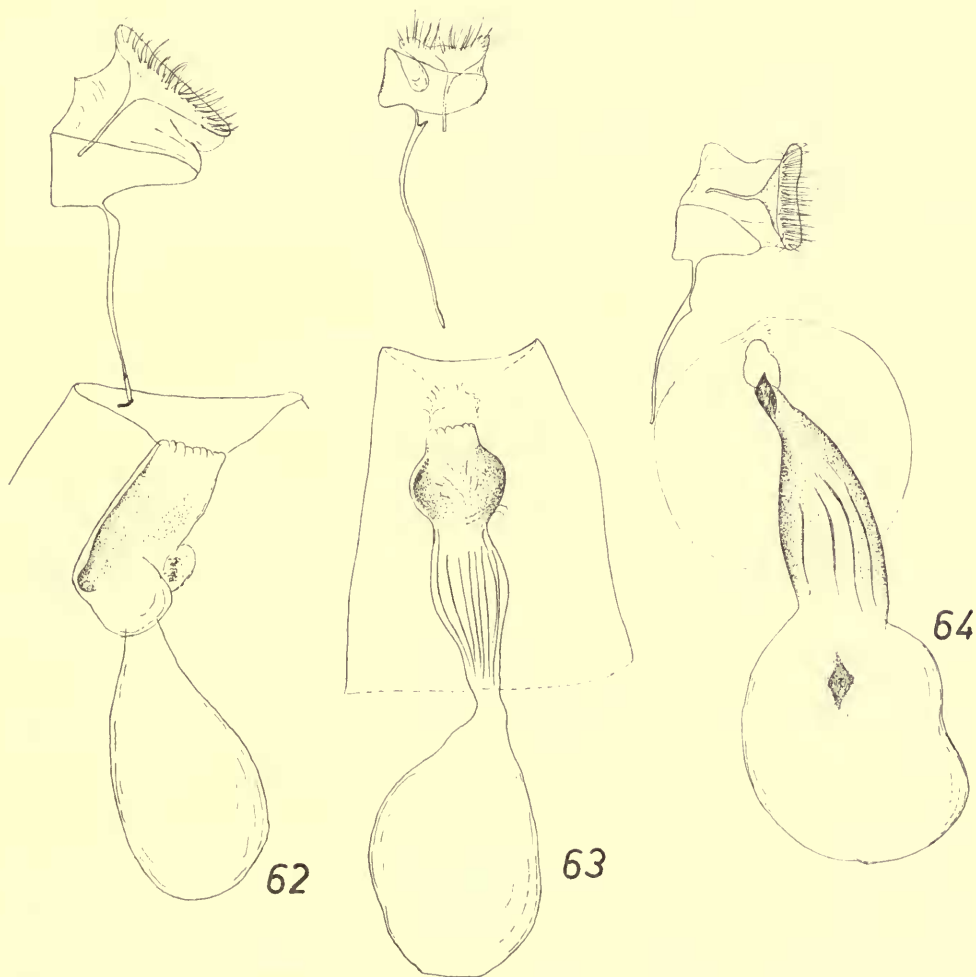
author's coll. ; SENEGAL : Sedhiou, 22 ♀, in BM(NH) and in author's coll. ; SIERRA LEONE : 1 ♂, 2 ♀, in BM(NH) ; GUINEA : Konakry, 1 ♂, in Muséum National d'Histoire Naturelle, Paris.

***Chilo zacconius* sp. n.**

(Pl. 4, fig. 13 ; Pl. 5, fig. 3 ; Text-figs 57, 62)

Ocellus moderately sized but distinct. Face rounded ; corneous point and ventral ridge both absent. Labial palpus as in *diffusilineus*. Fore wing : length 10.0–14.0 mm ; *R*₁ confluent with *Sc* ; ground-colour and maculation very similar to those in *diffusilineus*, but ground-colour less variable, always ochreous yellow.

♂ genitalia (Text-fig. 57) : pars basalis absent ; arms of juxta-plate slightly asymmetrical,



FIGS 62–64. *Chilo*, ♀ genitalia. 62, *zacconius*, Senegal, paratype. 63, *incertus*, Sudan.
64, *psammathis*, Northern Nigeria, holotype.

very long and thin, with slight subapical dentation ; aedeagus without ventral arm ; bulbous basal projection distinct ; a subapical thorn on a long base.

♀ genitalia (Text-fig. 62) : seventh sternum without plate ; ostial pouch broad, partly heavily sclerotized, well demarcated from ductus bursae ; the latter twisted ; no signum.

Most of examined specimens were bred from rice.

Distribution. Senegal ; Mali ; Ivory Coast ; Nigeria. The range of *zacconius* overlaps that of *diffusilineus* in West Africa.

The genitalia of *diffusilineus* and *zacconius* are very distinct as is shown in the figures ; the arms of the juxta-plate in *diffusilineus* are much shorter, and the ductus bursae is not twisted. Both species are very similar in external appearance.

Type material examined. Holotype ♂. 'Senegal, Ziguinchor 10.v.68 ; on rice 165', GS-4734-SB, in author's coll.

Paratypes. 9 ex., same data, in Institut de Recherches Agronomiques Tropicales et des Cultures Vivrières, Paris and in author's coll. ; IVORY COAST : Ferkessedougou, 5 ex., 2.x.1968 ; SENEGAL : from Richard Toll, 1 ex., 2.x.1966, in Institut de Recherches Agronomiques Tropicales et des Cultures Vivrières, Paris ; MALI : Kogoni, 3 ex., 6.x.1967, from rice, in Institut de Recherches Agronomiques Tropicales et des Cultures Vivrières, Paris and in author's coll., GS-7624-SB ; SOUTH NIGERIA : Ilesha, 1 ♀, (*Capt. Humphrey*), GS-7900-BM, in BM(NH) ; NIGERIA : Baddegi, from rice stem, 1 ♂ 1 ♀, GS-10721-BM, in BM(NH).

Chilo incertus (Sjöstedt) **comb. n.**

(Pl. 4, fig. 14 ; Text-fig. 63)

Diatraea incerta Sjöstedt, 1926 : 10.

Pareurupa incerta (Sjöstedt) Bleszynski & Collins, 1962 : 331.

♀. Ocellus present. Face rounded, moderately protruding forward beyond eye ; corneous point and ventral ridge both absent. Labial palpus 4 times as long as diameter of eye. Fore wing : length 12.0 mm (type in poor condition, but obviously smaller) ; R_1 in type confluent with Sc , but fused with Sc for a long distance in the other ♀ studied ; ground-colour dull yellow ; discal dot small ; subterminal line as ill-defined, yellow-brown line ; median line probably ill-defined or reduced (difficult to detect in poorly preserved specimens studied) ; terminal dots present ; metallic scales absent ; a brown oblique shade from near apex to about middle of the width of the wing ; type almost uniformly brown. Hind wing silky white.

♀ genitalia (Text-fig. 63) : ostial pouch heavily sclerotized, bulbous ; ductus bursae constricted behind ostial pouch, adjacent portion rather heavily sclerotized and swollen, but slightly narrower than the remainder of ostial pouch ; signum absent.

♂ unknown.

Distribution. Sudan.

The presence of an oblique shade in the fore wing suggests that this species comes close to *agamemnon*, *diffusilineus* and *zacconius* from which it is, however, very distinct in the ♀ genitalia as is shown in the figures. The ranges of *incertus*, *agamemnon* and *diffusilineus* overlap in Sudan. The type of *incertus* is in extremely poor condition, but the genitalia are well preserved.

Type material examined. Holotype ♀. 'Sudan Nilen ; Pr. W. Exp. Gylid. ;

Diatraea incerta Rothsch. ; 425 58 ; 128', GS-799-SB, in Naturhistoriska Riksmuseet, Stockholm.

Other material. SUDAN : 1 ♀ in author's coll.

***Chilo psammathis* (Hampson)**

(Pl. 5, fig. 5 ; Text-figs 64, 65)

Argyria psammathis Hampson, 1919 : 450.

Diatraea perpulverea Hampson, 1919 : 53 [syn. Martin, 1954 : 120].

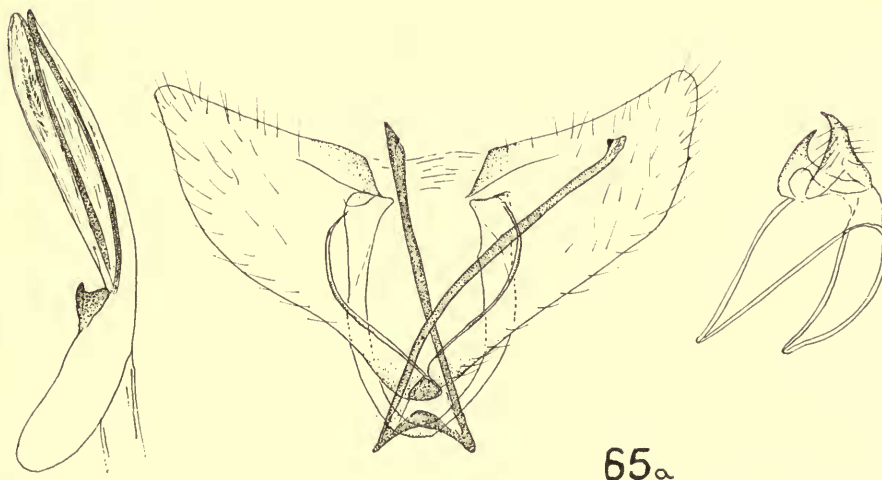
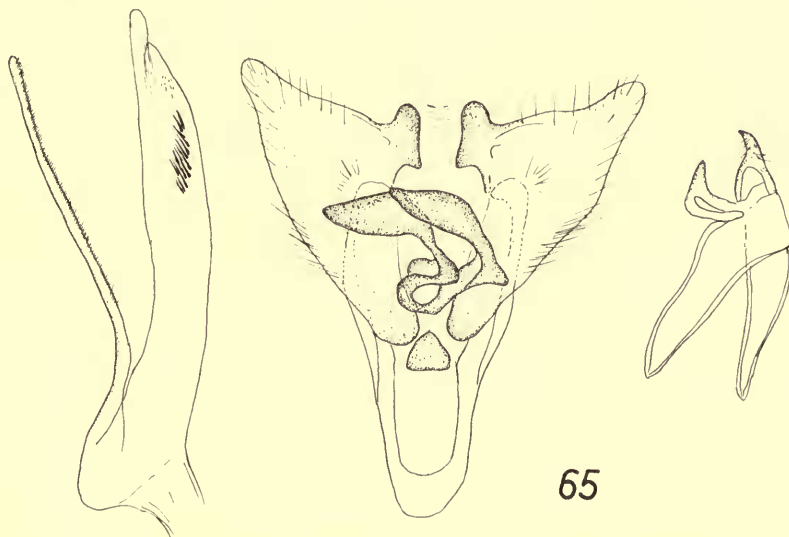


FIG 65-65a. *Chilo*, ♂ genitalia. 65, *psammathis*, Southern Nigeria, paratype. ♂ genitalia. 65a, *mercatorius*, Congo, Elisabethville, holotype.

Chilotraea psammathis (Hampson) Martin, 1954 : 120, figs 8 [♂ genitalia], 20 [♀ genitalia].

Chilo psammathis (Hampson) Bleszynski, 1962b : 115, fig. 8 [♂ genitalia].

Ocellus rather small, but distinct. Face rounded, slightly protruding forward beyond eye ; corneous point and ventral ridge both absent. Labial palpus 2.5 (♂) to 3 (♀) times as long as diameter of eye. Fore wing : length 8.0–9.0 mm ; R_1 confluent with Sc ; apex narrowly rounded ; ground-colour dull, almost unicolorous brown without markings except for indistinct terminal dots ; metallic scales absent ; fringes strongly shiny brown. Hind wing silky whitish, in some specimens with termen greyish.

♂ genitalia (Text-fig. 65) : valva decidedly tapering to a narrowly rounded apex ; pars basalis distinct, glabrous, moderately sclerotized ; juxta-plate characteristic in shape, with strong, elongate, sub-ovate arms, without subapical teeth ; aedeagus without bulbous basal projection ; ventral arm of aedeagus from very near base, very thin, almost reaching end of aedeagus, densely clothed ventrally with minute bristles ; row of tapering moderately long, thin cornuti present.

♀ genitalia (Text-fig. 64) : ostial pouch very strongly sclerotized, small, poorly demarcated from ductus bursae ; the latter very narrow just beyond ostial pouch, then suddenly dilated, bulbous, heavily sclerotized ; with some longitudinal distinct grooves ; signum lamellate without median ridge.

Distribution. Nigeria ; Ghana.

Type material examined. *psammathis*. Holotype ♀. 'N. Nigeria, Bida, 23.ix. 1910, Scott Macfie ; Type H.T. ; *Argyria psammathis* type ♀ Hampson.', GS-2175-BM, in BM(NH) ; 1 ♀ paratype, Ghana ; Bibianaha, abdomen missing, in BM(NH).

perpulverea. LECTOTYPE ♂ (present designation). 'Nigeria, Minna, 28.viii. 1919. Scott Macfie, 1911–389 ; *Diatraea perpulverea* type ♂ Hampson.', GS-2185-BM, in BM(NH) ; 2 ♂ paralectotypes, same data, in BM(NH).

Other material. NIGERIA : North Nigeria, 1 ♂, 1 ♀, in BM(NH) ; GHANA : Northern Territories, 2 ♂, in BM(NH), 1 ♂ in author's coll.

Chilo luniferalis Hampson

(Pl. 1, fig. 11 ; Pl. 4, fig. 6 ; Text-figs 66, 68)

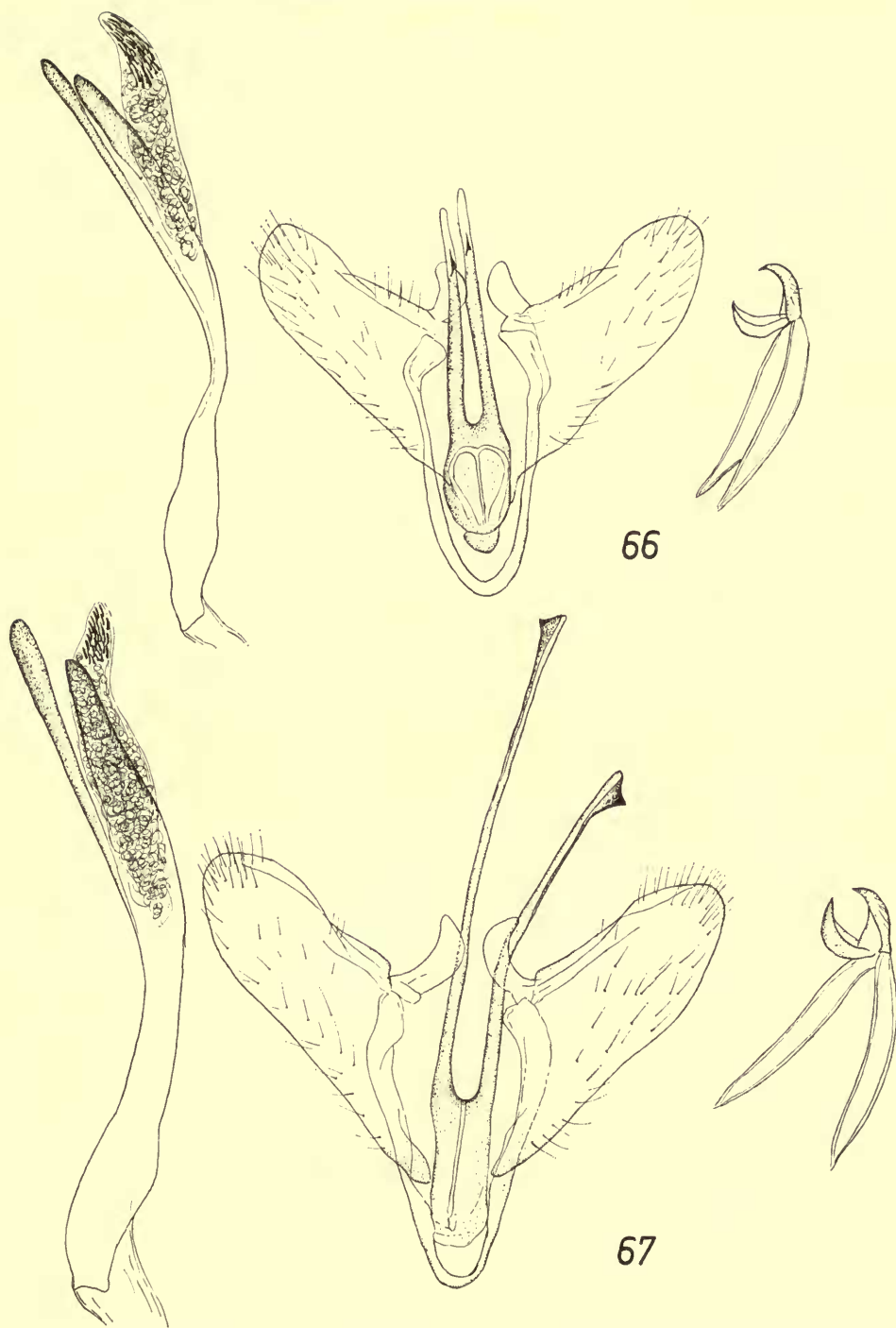
Chilo luniferalis Hampson, 1896a : 957.

Ocellus small. Face rounded, slightly protruding forward beyond eye ; corneous point and ventral ridge both absent. Labial palpus 3 (♂) to 4 (♀) times as long as diameter of eye. Fore wing : length 10.0–15.0 mm ; R_1 free ; ground-colour dull dirty cream dusted with brown scales ; metallic scales absent ; discal dot double ; terminal dots very distinct ; median line reduced ; subterminal line a poorly traceable brown shade, in some specimens almost absent ; fringes slightly glossy. Hind wing dirty cream, termen edged with greyish.

♂ genitalia (Text-fig. 66) : pars basalis distinct, lightly sclerotized ; juxta-plate with two long, thin arms, one of these slightly longer than the other ; length of juxta-plate plus longer arm about equal to length of valva ; each arm of juxta-plate with apex lightly sclerotized and with tooth remote from apex ; aedeagus much longer than valva plus saccus ; angulate, narrow, divided apically ; basal projection and ventral arm both absent ; vesica armed with apical patch of numerous cornuti.

♀ genitalia (Text-fig. 68) : ostial pouch heavily sclerotized, flattened, well demarcated from ductus bursae ; the latter narrow behind ostial pouch, then much swollen, partly heavily sclerotized, longitudinally grooved ; another swelling present near bursa copulatrix.

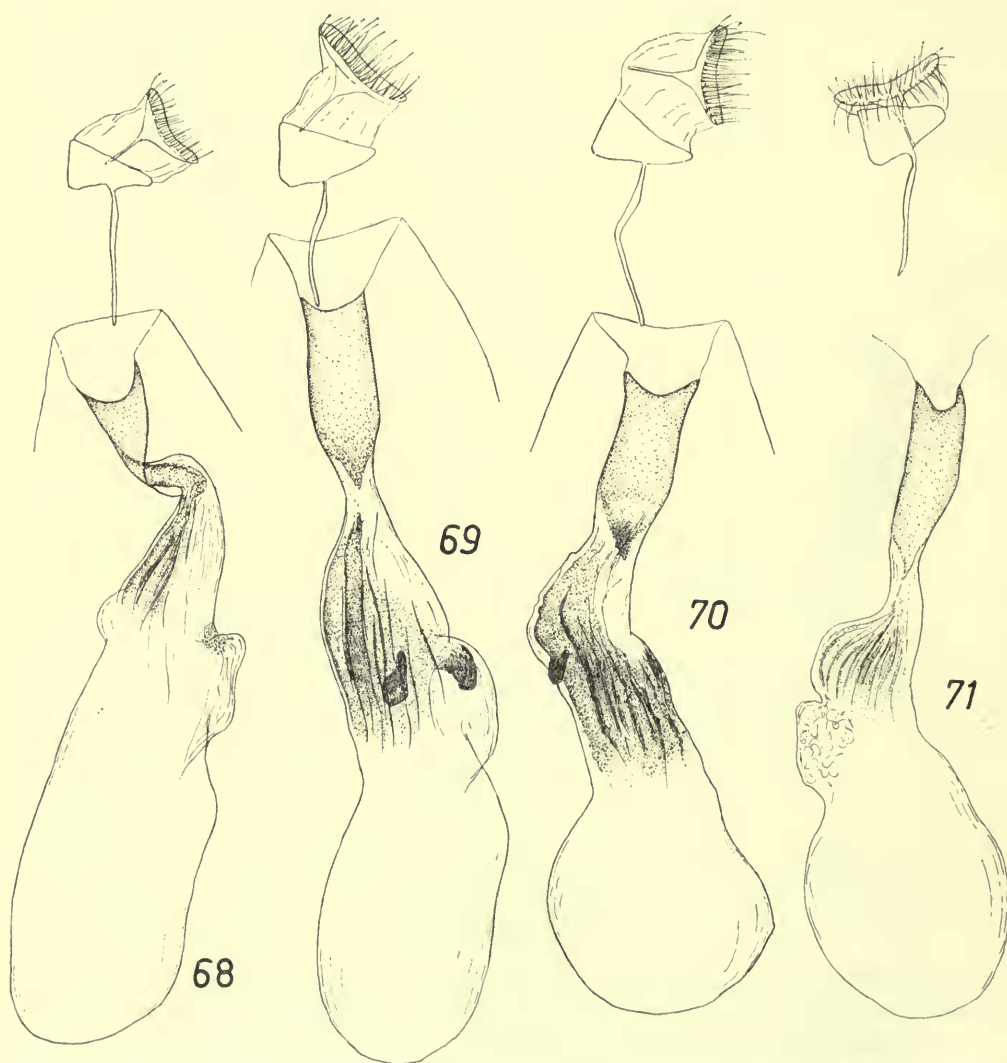
Distribution. Ethiopia ; Sudan ; Central African Republic ; Democratic Republic of the Congo.



FIGS 66-67. *Chilo*, ♂ genitalia. 66, *luniferalis*, Congo, Uelle.
67, *perfusalis*, Ghana.

Type material examined. LECTOTYPE ♀ (present designation). '[Ethiopia] 76.59. Abyss. ; *Chilo luniferalis* ♀ type Hmps. ', GS-7061-BM(NH).

Other material. SUDAN : Prov. Wad Medani, Blue Nile, 2.viii.1962, 1 ♀, in Zoologische Sammlung d. Bayerischen Staates, Munich ; Gondokoro, White Nile, 3 ♀ in BM(NH) and in author's coll. ; CENTRAL AFRICAN REPUBLIC : Fort Crampel, 1 ♂, in Muséum National d'Histoire Naturelle, Paris ; DEMOCRATIC REPUBLIC OF THE CONGO : Upper Uelle District, Dungu, 2 ♂, in BM(NH) and in author's coll.



FIGS 68-71. *Chilo*, ♀ genitalia. 68, *luniferalis*, Sudan. 69, *perfusalis*, Sierra Leone. 70, *perfusalis*, Northern Nigeria. 71, *perfusalis*, Southern Nigeria, paralectotype.

Chilo perfusalis (Hampson)

(Pl. 4, fig. 15 ; Text-figs 67, 69-71)

Diatraea perfusalis Hampson, 1919 : 55.*Chilo perfusalis* (Hampson) Bleszynski, 1962b : 115, fig. 25 [♀ genitalia].

Similar to *luniferalis*. Fore wing considerably varying in size and colour, from brownish yellow to almost unicolorous brown.

♂ genitalia (Text-fig. 67) : similar to those in *luniferalis* but much larger, and with much longer arms of juxta-plate ; left arm decidedly longer than right arm ; left arm plus juxta-plate almost twice as long as valva ; each arm with apical strengthening terminating in a strong tooth.

♀ genitalia (Text-figs 69-71) : similar to those in *luniferalis*, but ductus bursae with heavily sclerotized area much larger than in *luniferalis*.

Distribution. Senegal ; Sierra Leone ; Nigeria ; Ghana.

Both lectotype and lectoparatype are smaller and darker than other examined specimens. Perhaps the material examined contains two species, but too little material is available to clarify this problem.

Type material examined. LECTOTYPE ♀ (present designation). 'South Nigeria, Ogbomoso, Yorubaland (Carter) 1901-224 ; *Diatraea perfusalis* type ♀ Hmpsn.', GS-7058-BM, in BM(NH) ; 1 ♀ lectoparatype, same locality, in BM(NH).

Other material. SENEGAL : 6 ♀ in BM(NH) and in author's coll. ; SIERRA LEONE : Pt. Lokko, in BM(NH) ; NIGERIA : North Nigeria, 2 ♂, in BM(NH) ; GHANA : Northern Territory, Navaro, viii.1923, in BM(NH) ; Gambaga, 3 ♀, in BM(NH) and in author's coll.

Chilo costifusalis (Hampson)

(Pl. 1, figs 6, 9, 12 : Pl. 4, fig. 9 ; Text-figs 72, 75-77)

Diatraea costifusalis Hampson, 1919 : 55.*Diatraea costifusalis* Hampson ; Rothschild, 1921 : 221.*Chilo costifusalis* (Hampson) Bleszynski, 1962b : 113, figs 10 [♂ genitalia], 22 [♀ genitalia].

Ocellus rather small. Face rounded, slightly protruding forward beyond eye ; corneous point and ventral ridge both absent. Labial palpus 3 (♂) to 4 (♀) times as long as diameter of eye. Fore wing : length 7.5-11.5 mm ; R_1 confluent with Sc ; ground-colour dull yellow to ochreous, darkened along costa ; sometimes veins and intervenular spaces outlined with brown ; subterminal line rather distinct, consisting of brown, rather metallicly shiny scales ; median line present or absent, concolorous with subterminal line, often reduced in dorsal half of the wing ; some patches of rather metallicly shiny scales in middle area ; in lectotype a large, contrasting spot ; in one ♀ median line strongly dilated on costa ; terminal specks very distinct ; fringes varying from glossy to metallicly shiny. Hind wing silky cream to white.

♂ genitalia (Text-fig. 72) : pars basalis small, rounded, lightly sclerotized ; arms of juxta-plate long, well extended beyond costa of valva ; delicately hairy near base ; both arms with single subapical teeth ; aedeagus without bulbous basal projection ; ventral arm present, short, situated just beyond middle of aedeagus ; a row of thin, small cornuti present.

♀ genitalia (Text-figs 75-77) : ostial pouch not demarcated from adjacent part of ductus bursae but being slightly broader than it ; rather heavily sclerotized ; two lamellate signa with distinct median ridges are present.

Distribution. Malawi ; Tanzania ; Democratic Republic of the Congo ; Angola. Rothschild (1921) mentioned this species from Nigeria, but his record was probably a misidentification of the similar *mesoplagal*is.

Type material examined. LECTOTYPE ♂ (present designation). [Malawi :] 'Nyasaland, Mt. Mlanje, 3.12.1913. S. A. Neave. 1914-171 ; *Diatraea costifusalis* type ♂ Hmpsn.', GS-7059-BM, in BM(NH) ; 1 ♀ lectoparatype, same data, taken on December 1st, GS-7060-BM, in BM(NH).

Other material. TANZANIA : Nyassa Lake, Mango, 600 m, 1 ♀, 20.xi, in Zoologische Sammlung d. Bayerischen Staates, Munich ; DEMOCRATIC REPUBLIC OF THE CONGO : Elisabethville, 40 ex., in Musée Royal de l'Afrique Centrale, and in author's coll. ; ANGOLA : Cambo River to Cugho River, 4 ♂, in BM(NH) and in author's coll. ; Luimbale, Mt. Moco, 15.iii.1934, 1 ♂, in BM(NH).

*Chilo mesoplagal*is (Hampson)

(Pl. 1, fig. 5 ; Text-figs 73, 78)

*Diatraea mesoplagal*is Hampson, 1919 : 54.

*Chilo mesoplagal*is (Hampson) Bleszynski, 1962b : 188, fig. 11 [♂ genitalia].

Ocellus well developed. Face rounded ; corneous point and ventral ridge both absent. Labial palpus 3.5 times as long as diameter of eye. Fore wing : length 9.5-11.5 mm ; R_1 free ; ground-colour yellowish, sparsely dusted with dark scales ; subterminal line close to termen, consisting of metallicly shiny, silvery scales ; broadly excurved without subdorsal tooth ; median line also silvery, edged with brown at either side, reduced in dorsal half, forming a large contrasting spot ; a semicircular dark spot apical of median line ; terminal specks distinct ; fringes slightly glossy, grey-brown. Hind wing silky white.

♂ genitalia (Text-fig. 73) : valva broad, ventral edge slightly projected medially, basal process absent, arms of juxta-plate long with single teeth well before apices ; a third, very lightly sclerotized, apically hairy arm, which is slightly shorter than other two ; aedeagus with bulbous basal projection ; ventral arm of aedeagus from near base, rather broad basally, then very narrow, nearly reaching apex ; thin portion clothed ventrally with numerous small bristles ; a row of moderate, very thin cornuti present.

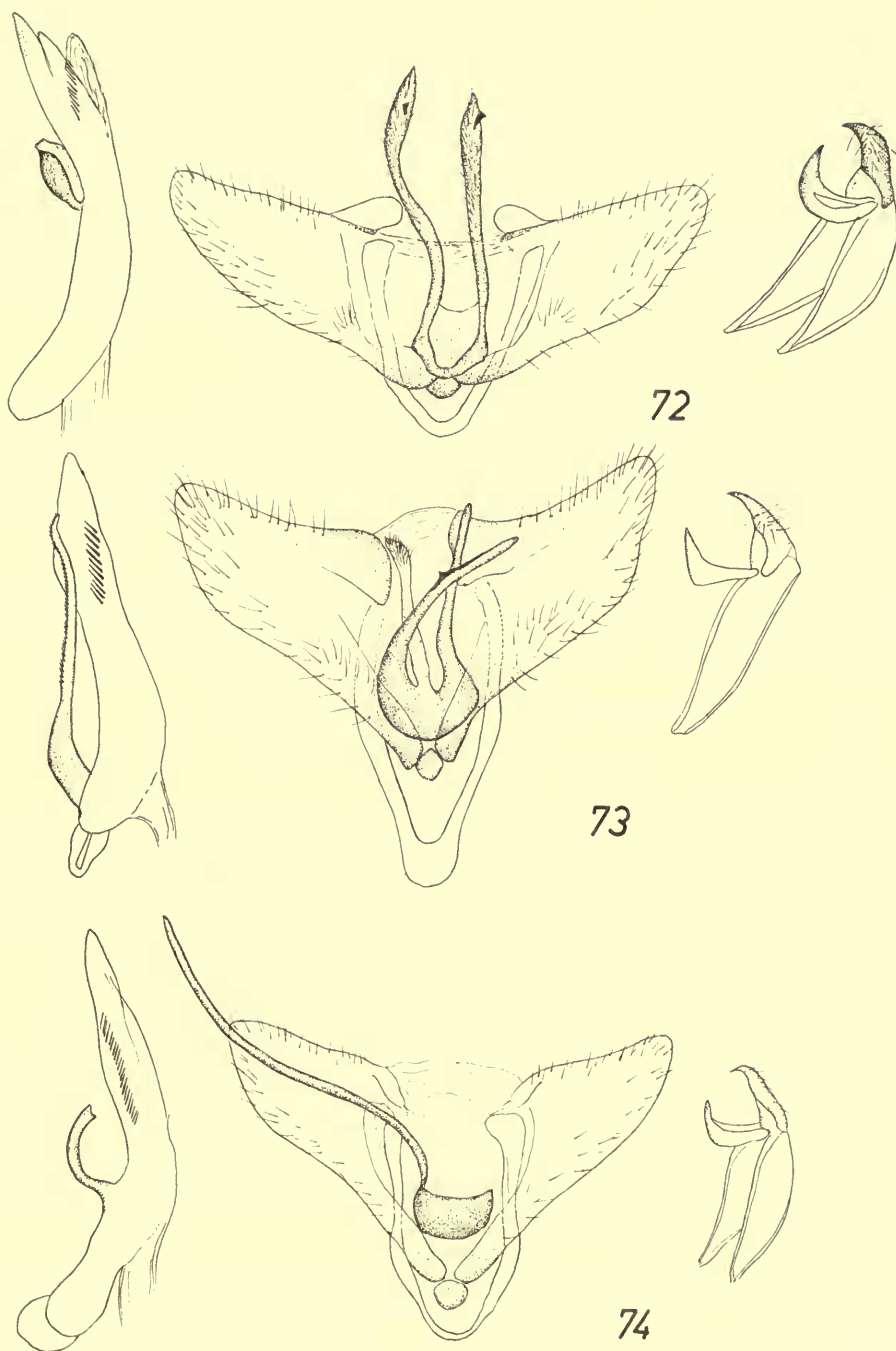
♀ genitalia (Text-fig. 78) : seventh sternite without any differentiation ; ostial pouch well demarcated from ductus bursae, rather heavily sclerotized ; ductus bursae lightly sclerotized, longitudinally wrinkled ; one elongate, lamellate signum with median ridge ; one ♀ from Sudan has slightly differently shaped ostial pouch.

Distribution. Sierra Leone ; Nigeria ; Ghana ; Sudan.

*C. mesoplagal*is is somewhat similar to *costifusalis*, but has larger ocelli and R_1 free in the fore wing ; in addition, in the ♀ genitalia of *costifusalis* there are two signa and only one in *mesoplagal*is ; in ♂ genitalia, the third, median part of the juxta-plate is absent in *costifusalis*.

Type material examined. LECTOTYPE ♂ (present designation). 'Sierra Leone, W. G. Clements. 99-116 ; *Chilo mesoplagal*is type ♂ Hmpsn.', GS-10940-BM in BM(NH) ; paralectotypes : Sierra Leone, 1 ♂, GS-7013-BM, in BM(NH) ; North Nigeria, 1 ♀, in BM(NH) ; Nigeria, Zungeru, 3 ♀, one GS-7083-BM, in BM(NH) ; Sudan, Gondokoro, White Nile, 1 ♀, GS-10941-BM, in BM(NH).

Other material. GHANA : Kete-krachi, 8 ♀ in BM(NH) and in author's coll.



FIGS 72-74. *Chilo*, ♂ genitalia. 72, *costifusalis*, Nyasaland, lectotype. 73, *mesoplagalalis*, Sierra Leone, paralectotype. 74, *argyrogrammus*, Kenya.

Chilo mercatorius sp. n.

(Pl. 5, fig. 7 ; Text-fig. 65a)

♂. Ocellus present. Face slightly protruding forward beyond eye, corneous point and ventral ridge both absent. Labial palpus 3.5 times as long as diameter of eye. Fore wing : length 7.5 mm ; R_1 confluent with Sc ; ground-colour dark grey ; subterminal line whitish, bordered with brown exteriorly ; dorsal-middle area whitish ; discal dot double, very distinct ; median line absent ; terminal dots very distinct, black ; fringes strongly shiny, almost metallic ; otherwise no metallic scales in fore wing. Hind wing light grey.

♂ genitalia (Text-fig. 65a) : pars basalis absent ; valva with basal, curved, thin strengthening ; juxta-plate with very thin, distinctly emarginate base and very long and thin arms, each terminating in a knob-like projection ; aedeagus with very short, broad ventral arm ; basal bulbous process absent ; patch of minute spikes.

♀ : unknown.

Distribution. Democratic Republic of the Congo.

C. mercatorius resembles some aberrant greyish specimens of *argyrogrammus*, which species, however, is characterized by the presence of the metallic scales in the fore wing and very different genitalia as is shown in the figures. The absence of the basal bulbous projection of the aedeagus, the short ventral arm of the aedeagus, and very long and thin arms of the juxta-plate are diagnostic.

Type material examined. Holotype ♂. 'Coll. Mus. Congo, Elisabethville, 9.xii.1949, Ch. Seydel', GS-6178-SB, in Musée Royal de l'Afrique Centrale, Tervuren.

Chilo argyrogrammus (Hampson) comb. n.

(Pl. 2, fig. 8 ; Text-figs 74, 83)

Hypiesta argyrogramma Hampson, 1919 : 538.

Ocellus rather well developed, sometimes vestigial. Face rounded ; corneous point and ventral ridge both absent. Labial palpus 3 times as long as diameter of eye. Fore wing : length 7.0-9.5 mm ; ground-colour dull white, well dusted with grey-brown scales ; subterminal line shiny silvery, edged with yellow-brown at either side, broadly excurved, without subdorsal tooth ; discal dot very distinct ; median line traceable, brown ; terminal area darkened ; area between subterminal and median lines longitudinally streaked ; fringes distinctly shiny, unicolorous grey. Hind wing light grey or dirty white.

♂ genitalia (Text-fig. 74) : pars basalis absent ; left arm of juxta-plate unusually long, extending far beyond apex of valva, without teeth or hair ; right arm reduced ; bulbous basal projection of aedeagus broad, distinct ; ventral arm of aedeagus curved, very narrow, rather short, situated before middle of aedeagus ; a long row of thin, moderately sized cornuti present.

♀ genitalia (Text-fig. 83) : seventh sternum without heavily sclerotized plate ; ostial pouch rather well demarcated from ductus bursae which is reduced to constriction between ostial pouch and corpus bursae ; corpus bursae unusually large, considerably elongate, with caudal portion finely wrinkled longitudinally ; one lamellate signum with distinct median ridge present.

Distribution. Kenya ; Tanzania.

This species was the only one placed by Hampson in his genus *Hypiesta*, a synonym of *Chilo*.

C. argyrogrammus is very well characterized by the reduction of the right arm of the juxta-plate and the reduction of the ductus bursae. The extent of the wrinkled

portion of the corpus bursae seems to be variable. The specimens from Tanzania have the ocelli atrophied, whereas individuals from Kenya have the ocelli rather well developed. It is important to note that variation in the size of ocelli is present also in other species of *Chilo*, e.g. *demotellus*.

Type material examined. Holotype ♂. [Kenya] 'Nairobi, Kikuyu, B. E. Africa, R. Crawshay. 1900-1951. 24.v.1899 ; *Hypiesta argyrogramma* type ♂ Hmpsn.', GS-10942-BM, in BM(NH).

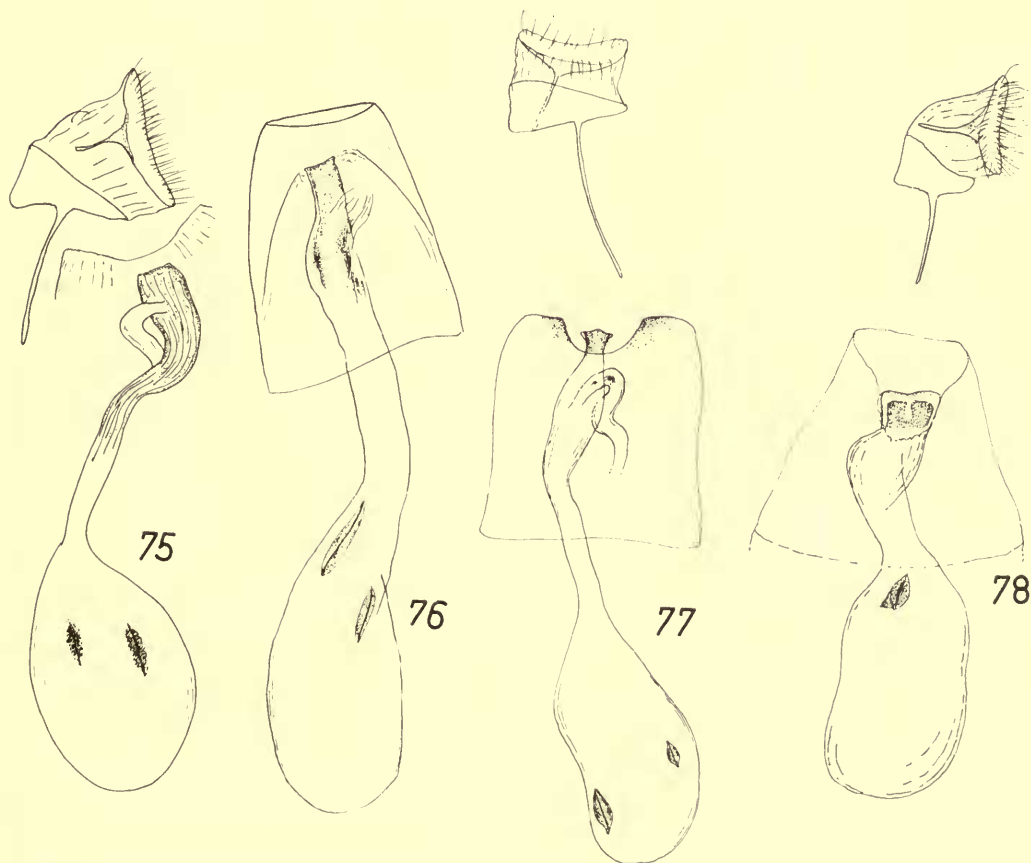
Other material. KENYA : Taveta, 1 ♂, in Muséum National d'Histoire Naturelle, Paris ; Nairobi, Thika Road, 1 ♂ in author's coll. ; Voi, 1 ♂, in BM(NH) ; 1 ♀, in National Museum, Nairobi. TANZANIA : Banagi Hill, Musoma, 1 ♂, in BM(NH).

***Chilo argyropastus* (Hampson)**

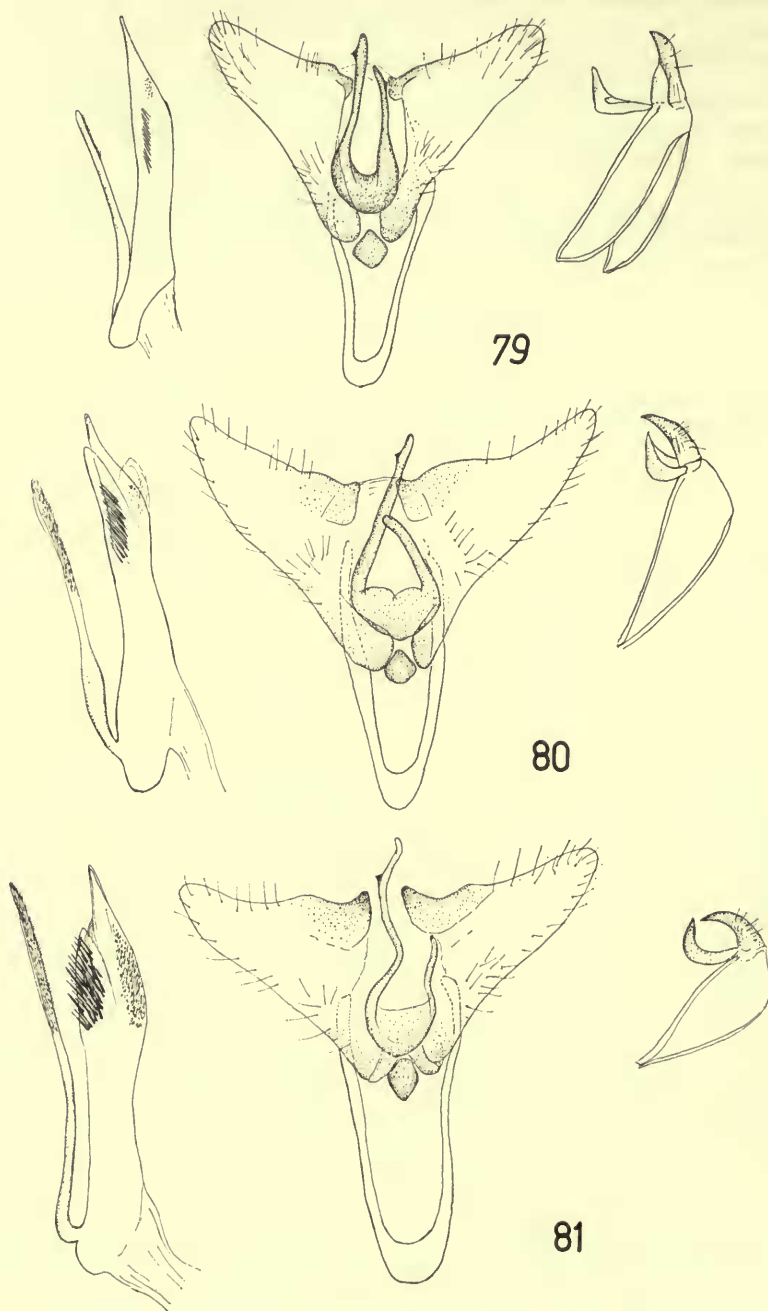
(Pl. 1, fig. 8 ; pl. 4, figs 16, 17 ; Text-figs 79-82)

Argyria argyropasta Hampson, 1919 : 449.

Diatraea argentisparsalis Hampson, 1919 : 55 [syn. Martin, 1954 : 120].



FIGS 75-78. *Chilo*, ♀ genitalia. 75, *costifusalis*, Nyasaland, paralectotype. 76, *costifusalis*, Angola. 77, *costifusalis*, Tanzania. 78, *mesoplagalalis*, Nigeria, paralectotype.



FIGS 79-81. *Chilo*, ♂ genitalia. 79, *argyropastus*. 80, *argyropastus*, Angola. 81, *argyropastus*, paralectotype of *argentsparsalis*.

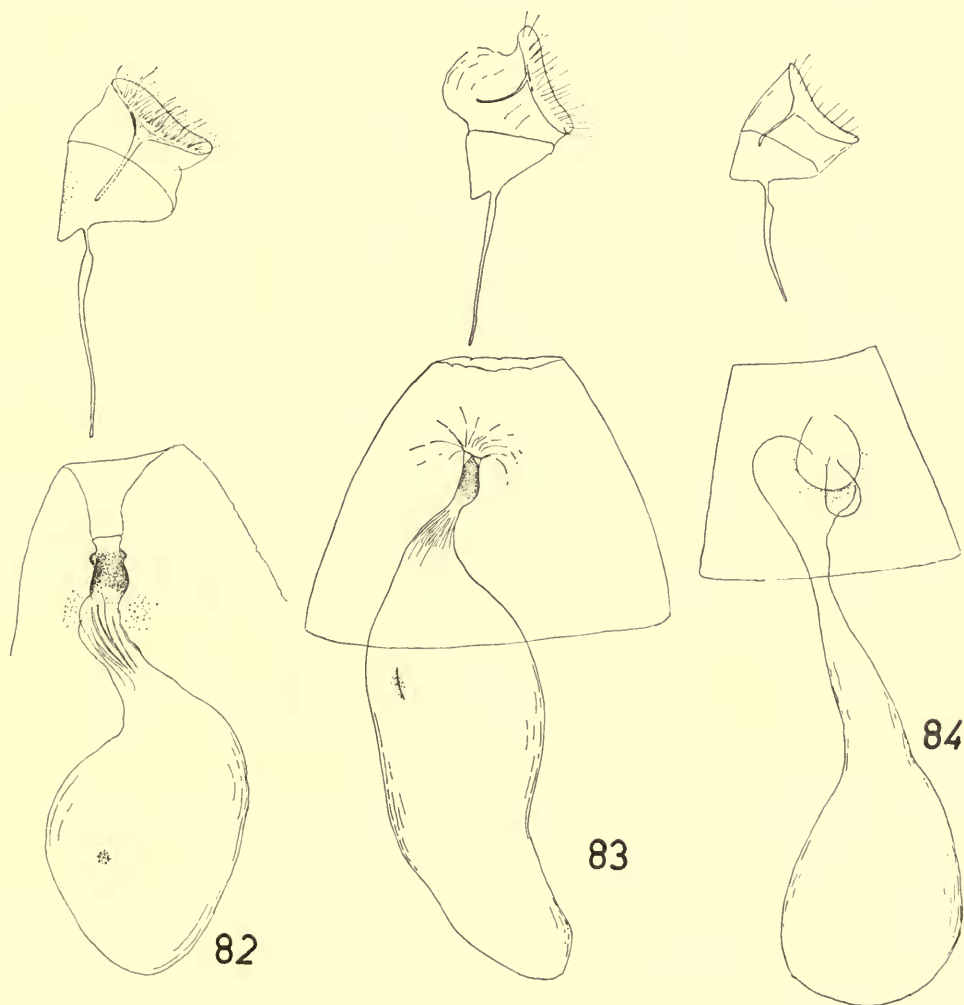
Diatraea argentsparsalis Hampson ; Janse, 1922 : 5.

Chilotraea argyropasta (Hampson) Martin, 1954 : 120, figs 6 [♂ genitalia], 16 [♀ genitalia].

Chilo argyropasta (Hampson) Bleszynski, 1962b : 117, fig. 9 [♂ genitalia].

Ocellus present. Face rounded, slightly protruding forward beyond eye ; corneous point and ventral ridge both absent. Labial palpus 3 (♂) to 4 (♀) times as long as diameter of eye. Fore wing : length 8.0–11.0 mm ; R_1 confluent with Sc ; ground-colour cream, variably dusted with brown scales ; sometimes fore wing almost unicolorous brown : transverse lines traceable ; silvery scales present ; discal dot often absent ; terminal dots present ; fringes unicolorous shiny golden. Hind wing greyish. Form *fuscata* Janse, 1922 : 5. Fore wing densely irrorated with fuscous. From Natal. Form *pallidifascia* Janse, 1922 : 6. Fore wing with a long cream stripe. From Natal.

♂ genitalia (Text-figs 79–81) : pars basalis absent ; juxta-plate with two narrow, moderately



FIGS 82–84. ♀ genitalia. 82, *argyropastus*, Tanzania. 83, *argyrogrammus*, Kenya.
84, sp., Kenya.

long arms, the right arm rather shorter than left arm ; each arm with subapical tooth ; saccus about as long as valva ; aedeagus tapering apicad ; bulbous basal projection absent ; ventral arm from base, very thin, as long as three quarters of aedeagus ; a row of very thin small cornuti present.

♀ genitalia (Text-fig. 82) : seventh sternum without heavily sclerotized plate ; ostial pouch heavily sclerotized, rectangular ; ductus bursae as broad as ostial pouch, distinctly, longitudinally wrinkled ; shorter than bursa copulatrix ; one rounded, scobinate signum present.

Distribution. South Africa ; Rhodesia ; Kenya ; Tanzania ; Angola.

This is a considerably variable species in both external appearance and the genitalia. One ♂ from Dongo, Angola can be separated from the typical form by the longer labial palpi, which are about four times as long as diameter of eye, and by the longer ventral arm of the aedeagus, reaching almost to the apex of the aedeagus. Forms *fuscata* and *pallidifascia* can not be considered as geographical races. Specimens with densely irrorated with fuscous fore wings are found among the typical specimens ; a specimen with a distinct cream stripe on the fore wing is found in the material from Angola. Both forms were cited as subspecies of *argyropastus* by Bleszynski and Collins, 1962 : 239.

One ♂ syntype of *Diatraea argyrolepia* Hmps. [synonym of *orichalcociliellus*], from Malawi, is conspecific with the type of *argyropastus*.

Type material examined. *argyropastus*. Holotype ♂. '[South Africa] Cape 97-185 ; *Argyria argyropasta* type ♂ Hmpsn.', GS-2188-BM, in BM(NH).

argentsparsalis. Lectotype ♂ (selected by Martin, 1954 : 120) [Malawi] 'Nyasa-land, Mt. Mlanje, 28.ii.1913. S. A. Neave. 1914-171 ; *Diatraea argentsparsalis* type ♂ Hmpsn.', GS-1734-BM, in BM(NH) ; paralectotypes: Malawi, Mt. Mlanje, 10.iii. and 28.ii., 2 ♂ and 1 ♀, GS-♂-5363-SB and GS-♀-2195-BM, in BM(NH) and in author's coll. ; Rhodesia, Mashonaland, 1 ♀, GS-7010-BM, in BM(NH).

Other material. MALAWI : 1 ♂ (syntype of *Diatraea argyrolepia*), GS-1735-BM, in BM(NH) ; TANZANIA : Nyassa Lake, 1 ♀, in author's coll. ; Mbinga, 1 ♂, in author's coll. ; RHODESIA : Salisbury, 1 ♀, in BM(NH) ; SOUTH AFRICA : Karkloof, 2 ♂ of f. *fuscata*, in BM(NH), 3 ♂ of f. *pallidifascia*, in BM(NH) ; ANGOLA : Dongo, 2 ♂, in Muséum National d'Histoire Naturelle, and in author's coll.

Chilo orichalcociliellus (Strand)

(Pl. 2, fig. 5 ; Text-figs 85-87, 91, 100)

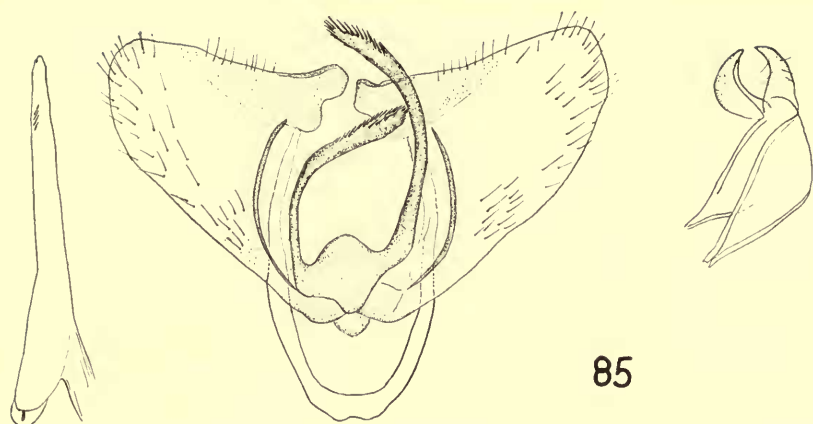
Diatraea orichalcociliella Strand, 1911 : 91.

Diatraea argyrolepia Hampson, 1919 : 54. **Syn. n.**

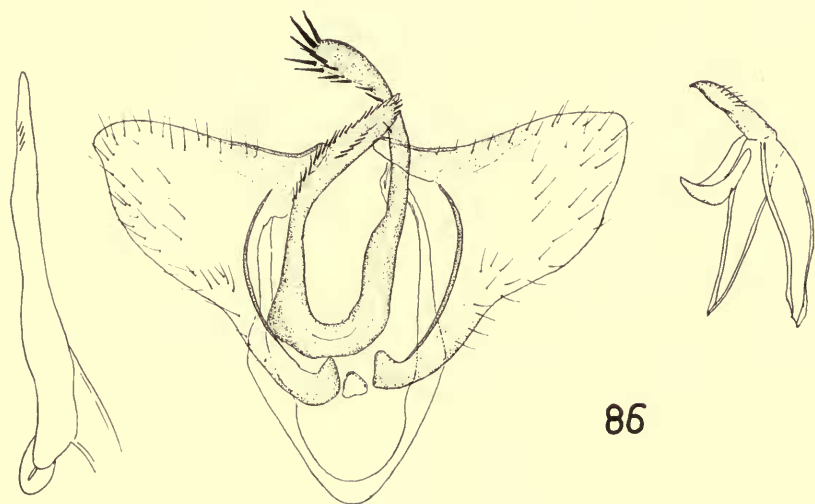
Chilo argyrolepia (Hampson) Bleszynski, 1962b : 112, figs 14 [♂ genitalia], 26 [♀ genitalia].

Chilo orichalcociliella (Hampson) Bleszynski, 1962b : 112, fig. 16 [♂ genitalia].

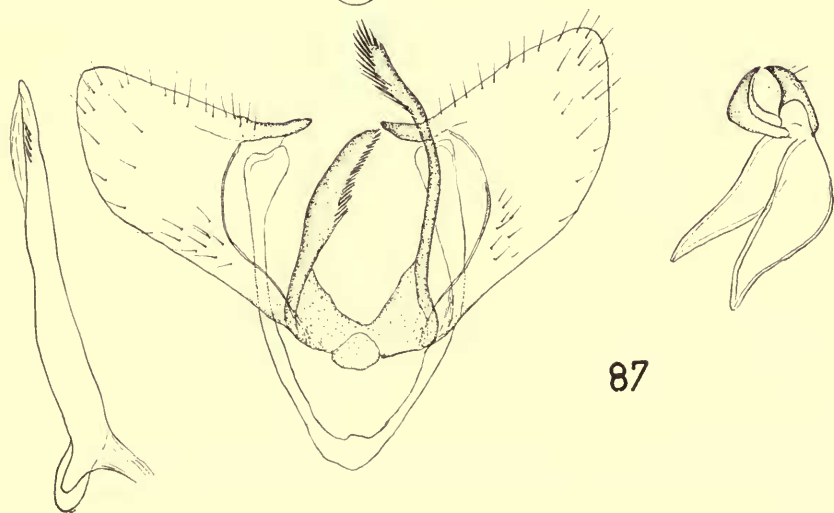
Ocellus moderately or fully developed. Face produced forward, conical, in many specimens with distinct corneous point, sometimes broadly rounded without corneous point, or with weak point ; ventral ridge always present. Labial palpus 3 (♂) to 4 (♀) times as long as diameter of eye. Fore wing : length 8.5-15.5 mm, maximum width 3.6-6.5 mm ; R_1 confluent with Sc ; ground-colour straw-yellow to ochreous yellow dusted with brown scales ; subterminal line formed by row of metallicly shiny, golden specks ; median line distinct, concolorous with subterminal line ; discal dot absent ; terminal dots present ; fringes metallicly shiny, golden, unicolorous. Hind wing cream-yellow, in some instances darkened with grey.



85



86



87

FIGS 85-87. *Chilo orichalcociliellus*, ♂ genitalia. 85, Madagascar. 86, Madagascar.
87, Kenya.

♂ genitalia (Text-figs 85–87) : valva short and broad, with broadly rounded apex ; saccus normal ; juxta-plate with two long arms densely clothed with short bristles ; the arms are evenly long, or the right arm is longer than the left arm ; aedeagus thin with bulbose basal projection ; ventral arm absent ; subapical patch of small cornuti.

♀ genitalia (Text-figs 91, 100) : seventh sternum with large, almost triangular, heavily sclerotized plate, densely clothed with minute spikes and with two rather triangular patches also clothed with spikes, situated at either side of ostial pouch ; caudal part of plate with deep, window-shaped notch with membrane ; genital opening small ; ductus seminalis narrow ; ostial pouch lightly sclerotized ; one distinct, elongate, scobinate signum ; corpus bursae reaching almost base of abdomen.

Distribution. Kenya ; Tanzania ; Democratic Republic of the Congo ; South Africa ; Madagascar.

Specimens from Kenya and Tanzania were bred from maize.

C. orichalcociliellus is easily distinguishable from allied *aleniellus*, *thyrasis*, *quirimbellus* and *zoriandellus* by proportionately short, scarcely tapering valva with broadly rounded apex, and by the presence of two additional, spined triangles on the seventh sternum in ♀. Moreover, *thyrasis* and *quirimbellus* (probably also *zoriandellus*) are characterized by a digitate, subapical process of the aedeagus, which is absent in *orichalcociliellus* and *aleniellus*. The corneous point of the face is almost always present in *orichalcociliellus*, but has not been observed either in *aleniellus* nor in *quirimbellus* or *zoriandellus* ; in *thyrasis* only one ♀ in the material examined has slight point. Externally, *orichalcociliellus* is practically indistinguishable in colour and pattern from the allied species.

The range of this species overlaps in central Africa with that of *aleniellus*, *thyrasis* and *quirimbellus*. In Kenya are known both *orichalcociliellus* and *thyrasis*.

Three of the syntypes of *argyrolepia* are referable to *aleniellus* ; they were taken in West Africa, where *orichalcociliellus* does not occur.

Type material examined. *orichalcociliellus*. Holotype ♂. '[Tanzania] *Diatraea orichalcociliella* m. Strand det ; Type ; *Diatraea orichalcociliella* n. sp. (♂) ; Zoolog. Mus. Berlin. Fundort D. O. Afr. *Diatraea orichalcociliella* Strand. Sammler. Institut etmans. 1 Cap. (1 ins. No. 29). Gef. am Juni 12–14/1910', GS-2672-BM, in Institut f. Spezielle Zoologie, Berlin.

argyrolepia. LECTOTYPE ♀ (present designation). '[Malawi] Nyasaland. Mt. Mlanje. 13.ii.1914. S. A. Neave. 1914–171 ; *Diatraea argyrolepia* type ♀ Hmpsn.', slide 1737-BM, in BM(NH) ; paralectotypes : 1 ♂, 1 ♀, same data as lectotype, GS-♂-7016-BM, ♀ not dissected ; Kola Valley, Kenya, 1 ♀ ; Weenen, South Africa, 1 ♀, GS-7009-BM ; Natal, South Africa, 1 ♀, GS-7022-BM, all in BM(NH).

Other material. KENYA : 4 ex. bred from Maize, in author's coll. ; Mombasa, 1 ♀, in BM(NH) ; Kilifi, 1 ♀, in BM(NH). TANZANIA : 4 ex. bred from maize, in author's coll. ; Lushoto, Usambara and Soni, 3 ♂, 3 ♀, in Zoologische Sammlung d. Bayerischen Staates, Munich ; DEMOCRATIC REPUBLIC OF THE CONGO : Lusambo, Stanleyville, Kamina, Stan à Coq, Kabinda, Kapanga, Kibombo, Uvira, Pania à Mutombo, Katoko-Kombe, Dimbelange and Kasai, taken in ii, iv, v, vi, vii, viii, x, xi, and xii, 15 ex., in Musée Royale de l'Afrique Centrale, Tervuren and in author's

coll. ; MADAGASCAR : Betroka, 4 ♂, 5 ♀, in BM(NH) and in author's coll. ; 8 ex. in Muséum National d'Histoire Naturelle, Paris.

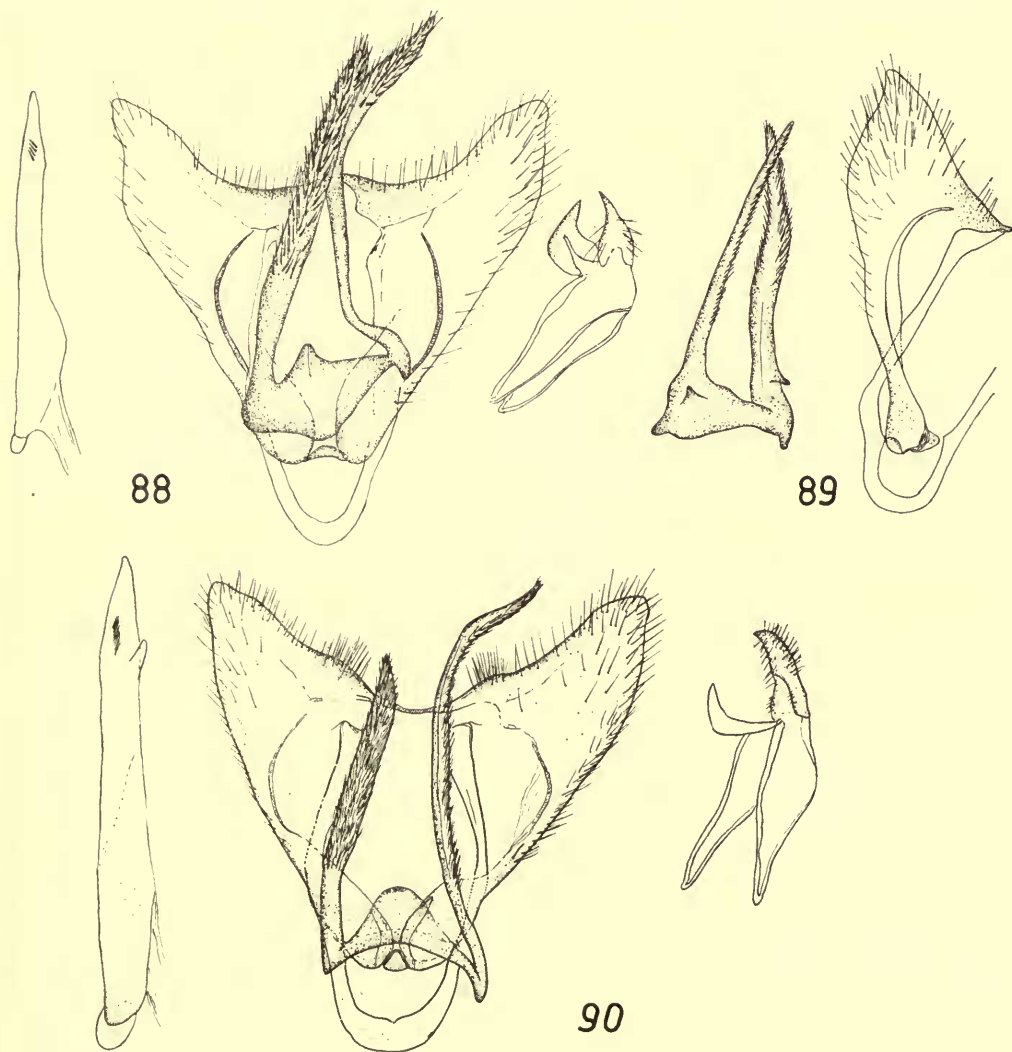
***Chilo aleniellus* (Strand)**

(Text-figs 88–90, 92, 93, 101, 102)

Diatraea aleniella Strand, 1913 : 77.

Chilo aleniella (Strand) Bleszynski, 1962b : 112, fig. 15 [♂ genitalia].

Externally very similar to *orichalcociliellus*, except face, which scarcely protrudes forward beyond eye, broadly rounded, without point.



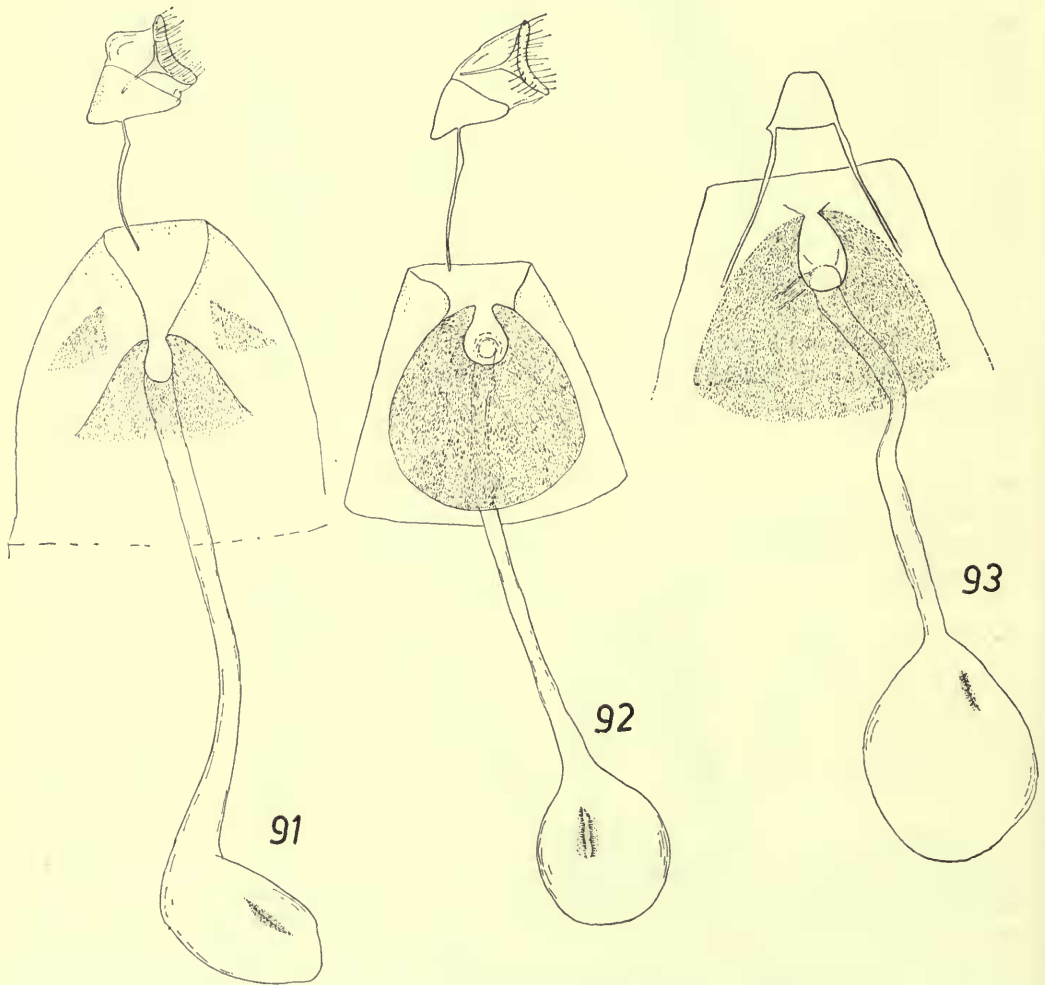
FIGS 88–90. *Chilo aleniellus*, ♂ genitalia. 88, Ghana, syntype of *argyrolepia*. 89, Spanish Guinea, holotype. 90, Congo.

♂ genitalia (Text-figs 88-90) : valva narrower than in *orichalcociliellus*, distinctly tapering caudad ; arms of juxta-plate varying in length, but always longer than in *orichalcociliellus* ; aedeagus very similar to that in *orichalcociliellus*.

♀ genitalia (Text-figs 92, 93, 101, 102) : triangular spiny patches of seventh sternum absent ; membranous window of heavily sclerotized plate of seventh sternum much larger and deeper than in *orichalcociliellus* ; plate larger ; ostial pouch lightly sclerotized in specimens from west Africa, but asymmetrical, heavily sclerotized ring in specimens from central Africa.

Distribution. Ghana ; Rio Muni ; Nigeria ; Fernando Po : Cameroon ; Democratic Republic of the Congo ; Uganda.

The problem of this species is rather strange. The specimens from Congo have the female genitalia rather distinct from those from west Africa (Text-fig. 102)



FIGS 91-93. *Chilo*, ♀ genitalia. 91, *orichalcociliellus*, Mozambique. 92, *aleniellus*, Ivory Coast. 93, *aleniellus*, Nigeria.

in having a smaller "window" in the seventh sternum, much broader ductus seminalis and an asymmetrical, heavily sclerotized ring on the ostial pouch. The populations of *aleniellus* from the Democratic Republic of the Congo probably form a distinct subspecies, or perhaps they represent a separate species. Because of the variation of the female genitalia in *aleniellus*, sometimes it is not easy to separate some specimens of this species from those of *thyrsis*. The latter has the female genitalia very variable (perhaps several races are involved) as is shown in Text-figs 103, 104 and 106). However, the genital opening in *thyrsis* seems always to be larger, while being very small in *aleniellus*.

The range of *aleniellus* overlaps in central Africa that of *orichalcociliellus*, *thyrsis* and *quirimbellus*. *C. orichalcociliellus* has not as yet been found in west Africa.

Type material examined. Holotype ♂. [Rio Muni] 'Alen ; Span. Guinea Benitogbt. 16-31.viii.06. G. Tessmann S. G. ; Type ; *Diatraea aleniella* ♂ Strand det. ; 2579 ; Fu.9.5/4.2', slide 2671-BM, in Institut f. Spezielle Zoologie, Berlin.

Other material. GHANA : Bibianaha, 1 ♂, 2 ♀ (syntypes of *Diatraea argyrolepia*), in BM(NH) ; NIGERIA : south Nigeria, 1 ♀ (syntype of *Diatraea argyrolepia*), in BM(NH) ; Warri, 3 ♀, in BM(NH) ; IVORY COAST : Abidou, 1 ♀, in Zoologische Sammlung d. Bayerischen Staates, Munich ; FERNANDO PO : 1 ♀, in BM(NH) ; CAMEROON : Efulen, 380 ex., in Carnegie Museum, Pittsburgh, Penn., U.S.A. and in author's coll. ; SIERRA LEONE : 3 ex., in BM(NH) ; UGANDA : Ruwenzori Range, Semliki Forest, 2 ♂, 1 ♀, in BM(NH) ; DEMOCRATIC REPUBLIC OF THE CONGO : Upper Uelle District, Dungu, 1 ♂, in BM(NH) ; Elisabethville and Eala, 25 ex. taken in i-iv, vi, viii, and xi, in Canadian National Collection, Ottawa, Ont., Canada, Musée Royale de l'Afrique Centrale, Tervuren, and in author's coll.

Chilo thyrsis Bleszynski

(Pl. 4, fig. 8 ; Text-figs 94, 95, 99, 103-105)

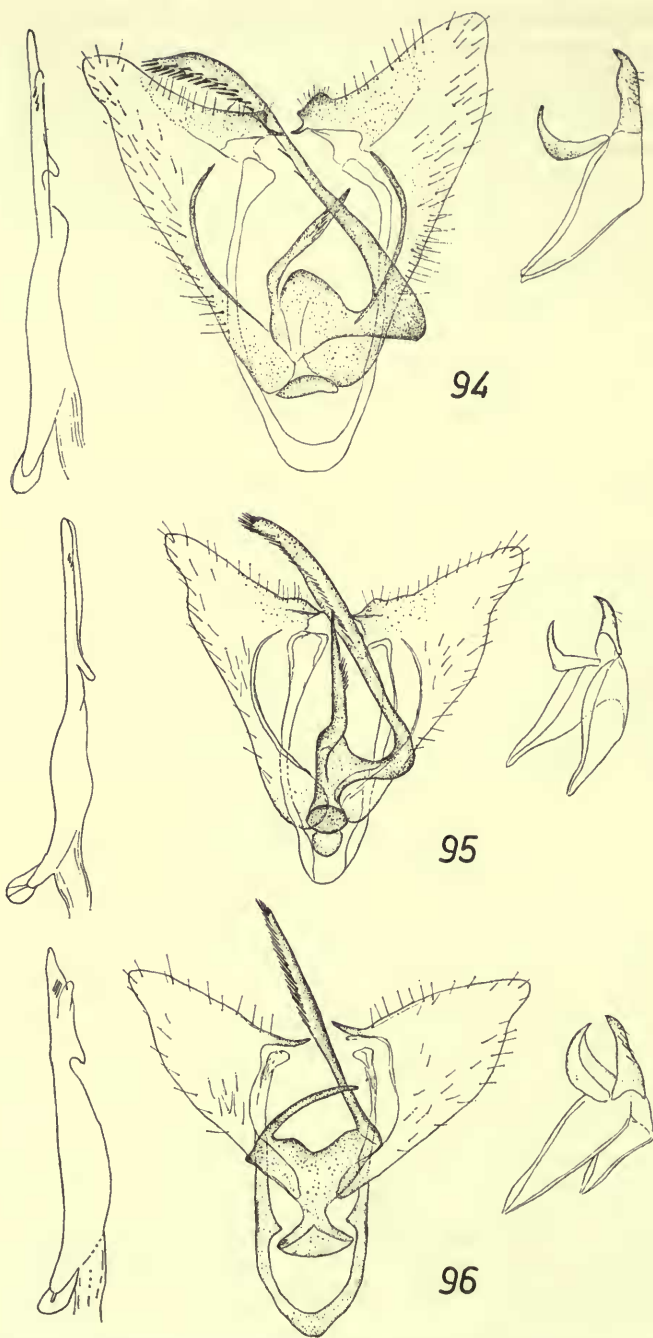
Chilo thyrsis Bleszynski, 1963 : 178, figs 59 [♂ genitalia], 60 [♀ genitalia].

Externally almost indistinguishable from *orichalcociliellus* and allies. Face variable in shape, broadly rounded ; slightly or moderately produced, in most instances without corneous point, but vestigial in one ♀ from Malawi.

♂ genitalia (Text-figs 94, 95) : similar to those in *aleniellus* except for arms of juxta-plate and aedeagus ; apical part of right arm slightly bent ; left arm much shorter than right arm, with strong apical spine and several small setae ; aedeagus with subapical digitate process.

♀ genitalia (Text-figs 99, 103, 104, 105) : very variable ; genital opening large ; 'window' in seventh sternum varying in size, large in typical specimens from Tanzania (Text-fig. 103), or reduced in specimens from central Africa and Kenya (Text-figs 104, 106) ; spikes of seventh sternum variably developed ; in most instances covering almost whole of plate ; the latter large, distinct ; caudal margin of ostial pouch distinctly strengthened in specimens from Tanzania, otherwise ostial pouch lightly sclerotized throughout ; caudal strengthening of ostial pouch in central African specimens larger ; Kenya specimens with heavily sclerotized, slightly asymmetrical ring on ostial pouch, varying in size ; the latter in all specimens bulbous ; one elongate, scobinate signum.

Distribution. Tanzania ; Kenya ; Democratic Republic of the Congo ; Uganda ; Rhodesia.



FIGS 94-96. *Chilo*, ♂ genitalia. 94, *thyrsis*, Tanzania. 95, *thyrsis* ssp. 96, *quirimbellus*, Angola, paratype.

The problem of identity of this species is difficult. Particularly it is extremely difficult to find any diagnostic characters which would distinguish ♂♂ of *thyrsis* from ♂♂ of *zoriandellus*. From *aleniellus* and *orichalcociliellus*, this species is easy to separate. *C. orichalcociliellus* has almost always a distinct corneous point on face ; valva is much wider and less tapered than in *thyrsis*, and the arms of the juxta-plate greatly differ from those in *thyrsis*, as is shown in the figures ; in the female genitalia of *orichalcociliellus* the genital opening is smaller than in *thyrsis* ; the plate of seventh sternum in *orichalcociliellus* is much shorter and accompanied by two additional small, triangular side plates clothed with spikes. The aedeagus in *aleniellus* has no subapical digitate process ; the left arm of juxta-plate is much longer than in *thyrsis* and is not terminated in a strong spine ; moreover the setae of the left arm in *aleniellus* are stronger and more numerous.

Very close to *thyrsis* are *quirimbellus* and *zoriandellus*. *C. quirimbellus* is well characterized by the straight apical part of the right arm of the juxta-plate ; moreover, the apical spine of the left arm of the juxta-plate is relatively much longer than in *thyrsis* and the central part of the juxta-plate is not so strongly developed, which is well seen in the slides made in dorso-ventral aspect. The ♀♀ of *quirimbellus* are very easily separable from those of *thyrsis* as follows : the plate of the seventh sternum has the peripheries free of spikes, which are concentrated in the central and caudal parts of the plate ; the ostial pouch has two heavily sclerotized rings which are always symmetrical ; the ostial opening is rather smaller than in *thyrsis* ; the plate of the seventh sternum forms two weak ridges commencing at the genital opening and running slightly obliquely cephalad.

The ♂♂ of *zoriandellus* are either unknown, or they are practically indistinguishable from those of *thyrsis*. Both species occur in Kibwezi, Kenya, from whence come the type-specimens of *zoriandellus*. The ♀♀ of *zoriandellus* have the caudal part of the ostial pouch broadly heavily sclerotized, the ostial pouch is always asymmetrical, and does not have another heavily sclerotized ring, which occurs in the specimens of *thyrsis* from Kenya ; the area covered with spikes of the seventh sternum, is in *zoriandellus* much smaller than in *thyrsis*.

C. thyrsis occurs in several local forms. It maybe that more than one species is involved, but probably only biological studies will clarify this obscure problem.

Type material examined. Holotype ♂. Tanzania, 'Tanganyika-Terr., Matengo-Hochland, wsw.v. Songea, 21.-31.i.'36 ; Linda, 13-1400 mm', GS-2575-SB, in Naturhistorisches Museum, Vienna.

Paratypes. Tanzania, 56 ex. Matengo ; Nyassa Lake ; Mbamba Bai ; and Songea, GS-9847-Mus. Vind., GS-9848-Mus. Vind., GS-9849-Mus. Vind., GS-9850-Mus. Vind., GS-2572-SB, GS-2573-SB, 4168-SB, GS-4169-SB, GS-4178-SB, GS-5344-SB, and GS-6285-SB, in Naturhistorisches Museum, Vienna, and in author's coll. ; Tanzania, Morogoro, 25.v.1925, 1 ♂, bred from maize, in BM(NH).

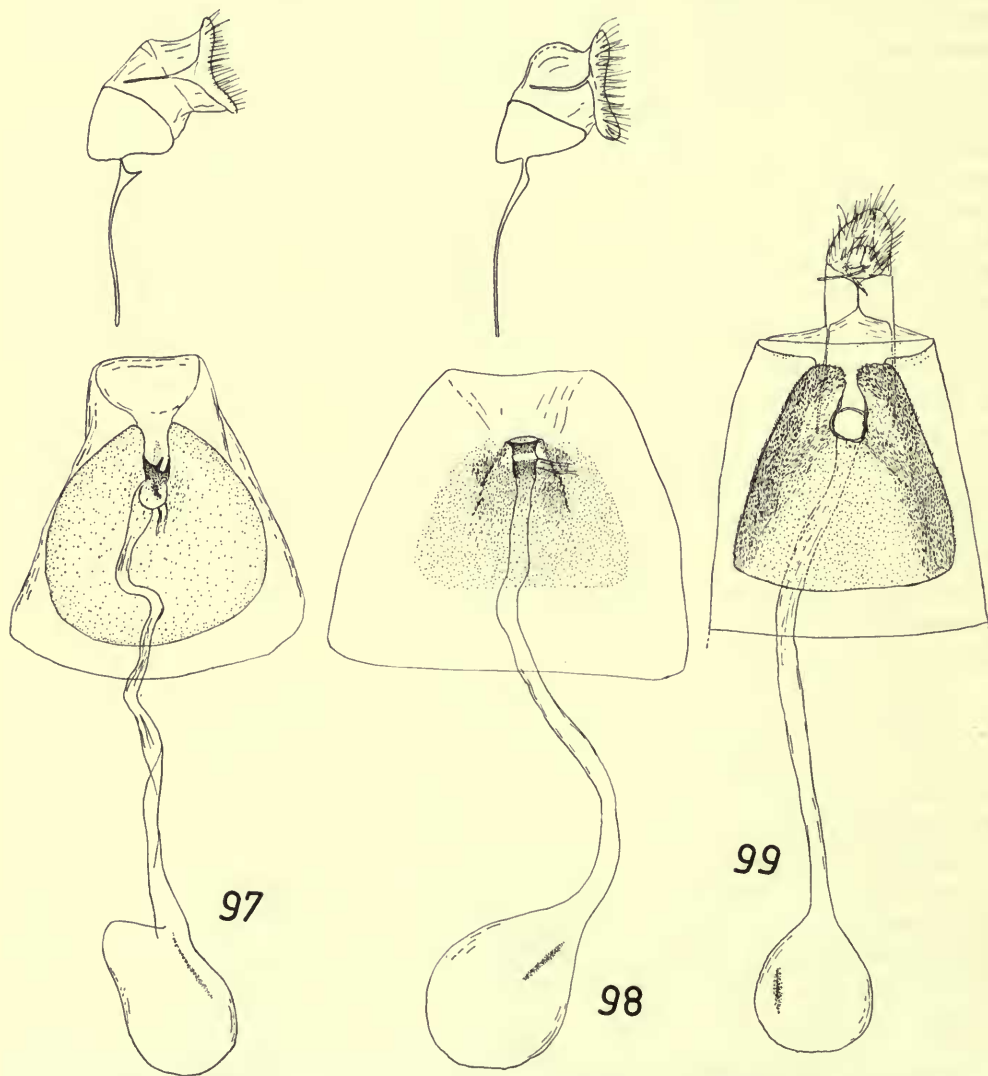
Other material. KENYA : Mtito Andei, xii.1950, 1 ♀, in BM(NH) ; Mombasa, 1 ♂, 4 ♀, in BM(NH) and in author's coll. ; Kibwezi, iv.1922, 6 ex., in BM(NH) ; RHODESIA : Fort Jameson, 4 ♀, in BM(NH) ; UGANDA : Kampala, 1 ♀, in BM(NH) ; TANZANIA : Dar-es-Salam, 1 ♀, in BM(NH) ; Nachingwea, 2 ♀, in BM(NH) ;

DEMOCRATIC REPUBLIC OF THE CONGO, Dungu, Upper Uelle District, 1 ♂, in BM(NH); Elisabethville; Kasenyi; West Kivu; Kashusha, Ituri; Nioka, i-iv and viii, 9 ex., in Musée Royale de l'Afrique Centrale, Tervuren and in author's coll.

Chilo quirimbellus sp. n.

(Text-figs 96, 98, 107)

Externally very similar to *thyrsis*, but with fore wing more heavily irrorated with brown scales; length of fore wing 8.0-12.0 mm.



FIGS 97-99. *Chilo*, ♀ genitalia. 97, *zorandiellus*, Kenya. 98, *quirimbellus*, Angola, paratype. 99, *thyrsis*, Tanzania, paratype.

♂ genitalia (Text-fig. 96) : differing from those in *thyrsis* in that apical part of right arm of juxta-plate straight, apical spine of left arm of juxta-plate much longer than in *thyrsis*, central part of juxta-plate much weaker.

♀ genitalia (Text-figs 98, 107) : similar to those in *thyrsis*, except for the ostial pouch which has symmetrical double, heavily sclerotized ring ; area of spikes of seventh sternum much smaller than in *thyrsis*, forming two weak ridges, commencing at genital opening and running obliquely cephalad ; 'window' in seventh sternum reduced ; ductus seminalis thin ; genital opening large ; one elongate, scobinate signum.

Distribution. Angola ; Democratic Republic of the Congo.

Type material examined. Holotype ♀. Angola, 'Quirimbo, 75 km. E. of P. Amboim, 300 m. 7-12 May 1934 : (Dr K. Jordan)', GS-7607-BM, in BM(NH).

Paratypes : Angola, Quirimbo, v.1934 (Dr K. Jordan), GS-11252-BM, 1 ♂, 12 ♀, in BM(NH) and in author's coll. ; Fazenda Congulu, Amboim, Angola, 700-800 m, 1 ♀, 12-22.iv.1934, GS-7596-BM, in BM(NH) ; N'Dalla Tando, north Angola, 2700 ft, 1 ♂, 21.xii.1908 (Dr J. W. Ansorge), GS-7614-BM, in BM(NH) ; N'Dalla Tando, north Angola, 1 ♀, 25.x.1908 (Dr J. W. Ansorge), GS-7659-BM, in BM(NH) ; Canhoca, Angola, 1 ♂, (Dr J. W. Ansorge), GS-7636-B6, in BM(NH) ; Benguella, Fort Quilinges, 1 ♀, 12.i.1904 (Dr J. W. Ansorge), GS-7658-BM, in BM(NH) ; Democratic Republic of the Congo, Lusambo, 2 ♀, 21.ii and 25.xi.1949 (Dr M. Fontaine), GS-6155-Sb and 6460-SB, in Musée Royale de l'Afrique Centrale, Tervuren and in author's coll. ; Democratic Republic of the Congo, Sankuru, Komi, i-ii.1930 (J. Ghesquière), GS-6168-SB, in Musée Royale de l'Afrique Centrale, Tervuren.

Chilo zoriandellus sp. n.

(Text-figs 97, 106)

Externally practically indistinguishable from *thyrsis* ; length of fore wing 9.5-12.0 mm.

♀ genitalia (Text-figs 97, 106) : genital opening large ; ostial pouch asymmetrical, with caudal part broadly heavily sclerotized and cephalic part bulbous, always lightly sclerotized. Area of spikes in plate of seventh sternum much smaller than in *thyrsis*.

The problem of ♂♂ of this species is not clear. Either the ♂ genitalia of *zoriandellus* are indistinguishable from those in *thyrsis*, or the material from Kibwezi, Kenya does not contain the males of *zoriandellus* at all.

Distribution. Kenya.

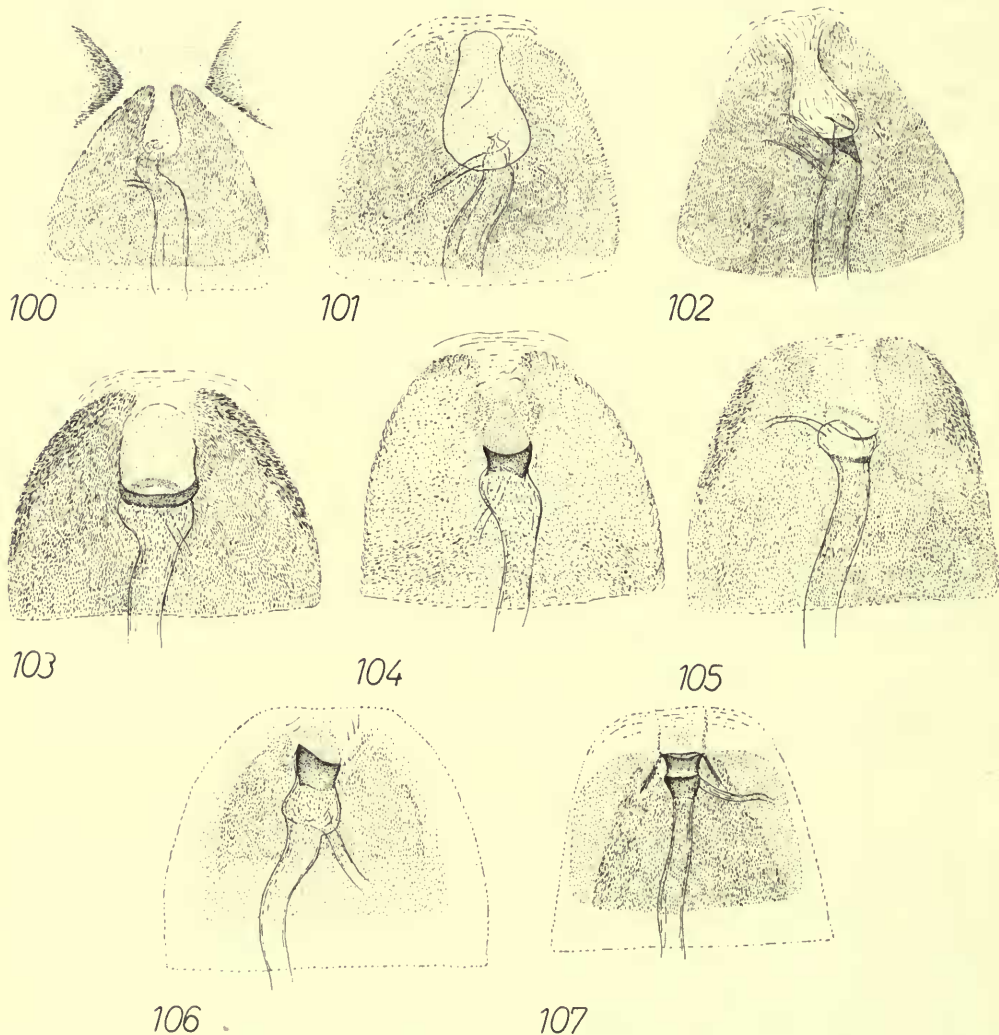
The ♀ genitalia of *thyrsis* and of *zoriandellus* are very similar, but the caudal part of the ostial pouch in *thyrsis* has only very narrow heavily sclerotized ring (in Tanzania specimens), or moderately broad (in specimens from Kenya and central Africa), while about half of the ostial pouch is heavily sclerotized in *zoriandellus*. However, the small area of spikes of the seventh sternum is diagnostic for *zoriandellus*. For more details see under *thyrsis*.

Type material examined. Holotype ♀. 'Kenya, Kibwezi, B. E. A. April 1922 (W. Feather)', GS-11250-BM, in BM(NH).

Paratypes : Kenya, Kibwezi, 10 ♀, iv.1922 and xii.1918 (W. Feather), GS-6721-BM, GS-7655-BM, GS-11248-BM, GS-11249-BM, GS-11253-BM, GS-11254-BM, GS-11255-BM, GS-5348-BM and GS-6283-BM, in BM(NH) and in author's coll.

Chilo demotellus Walker

(Pl. 4, fig. 1 ; Text-figs 108, 110)

Chilo demotellus Walker, 1866 : 1749.*Chilo demotellus* Walker ; Hampson, 1896a : 956 [in part].*Diatraea idalis* Fernald, 1896 : 76, pl. 6, fig. 12 [adult]. **Syn. n.***Diatraea idalis* Fernald ; Fernald, in Dyar, 1903 : 412.*Diatraea idalis* Fernald ; Forbes, 1923 : 591.

FIGS 100-107. *Chilo*, seventh segments and caudal parts of ♀ genitalia. 100, *orichalcociliellus*, Katanga. 101, *aleniellus*, Kameroun. 102, *aleniellus*, ? ssp., Katanga. 103, *thyrsis*, Tanzania, paratype. 104, *thyrsis* ? ssp., Democratic Republic of the Congo, Kivu. 105, *thyrsis* ? ssp. Kenya, Kibwezi. 106, *zoriandellus*, Kenya, Mombasa. 107, *quirimbellus*, Democratic Republic of the Congo, Lusambo, paratype.

Diatraenopsis idalis (Fernald) Dyar & Heinrich, 1927 : 40, fig. 78 [σ genitalia].

Chilo fernaldalis Dyar & Heinrich, 1927 : 40, fig. 31 [σ genitalia]. **Syn. n.**

Diatraenopsis idalis (Fernald) ; McDunnough, 1939 : 25.

Chilo fernaldalis Dyar & Heinrich ; McDunnough, 1939 : 25.

Chilo fernaldalis Dyar & Heinrich ; Bleszynski & Collins, 1962 : 240.

Diatraea idalis Fernald ; Bleszynski & Collins, 1962 : 292.

Chilo demotellus Walker ; Bleszynski, 1965 : 20, p13, pl. 43, fig. 64 D [σ genitalia].

Ocellus light, small, or vestigial. Face strongly produced forward, conical with sharp point ; ventral ridge absent. Labial palpus 2.5 (σ) to 3.5 (φ) times as long as diameter of eye. Fore wing : length 10.5–17.0 mm ; R_1 free ; sexual dimorphism similar to that in *phragmitellus* ; φ with apex of fore wing distinctly more pointed and termen more oblique than in σ ; ground-colour dull grey, beige or brown, $\varphi\varphi$ lighter than $\sigma\sigma$; σ with ill-defined subterminal and median lines formed by yellowish specks ; φ fore wing unicolorous ; terminal dots present in both sexes ; metallic scales absent ; fringes slightly glossy, concolorous with ground-colour. Hind wing light brown in σ , creamy white in φ .

σ genitalia (Text-fig. 108) : pars basalis a distinct lobe ; juxta-plate with arms equally long, dilated posteriorly, each with subapical tooth ; aedeagus with bulbous basal projection and moderately long, hairy ventral arm ; a heavily sclerotized, posterior rod ending in a distinct spine.

φ genitalia (Text-fig. 110) : ostial pouch moderately sclerotized, rather poorly demarcated from ductus bursae ; the latter twisted, lightly sclerotized, with swelling ; signum absent.

Distribution. U.S.A.: New Jersey, New York, Florida, Georgia.

The identity of this species has hitherto been confused. The Walker description was based on a single σ with no locality label ; moreover the type has the abdomen missing. However, the collection of the British Museum (N.H.) contains three additional σ , two of which have no locality labels and one bears a label : 'Japan'. Hampson, 1896a : 956, gave Japan as the distribution of *demotellus*, and his opinion was certainly based on the σ with label 'Japan'. A comparison of the Japanese σ with the two other σ (with no locality labels) was rather difficult as the abdomen of the Japanese σ was partly destroyed by mildew and Dermestidae. However, a careful comparison of the structure of the face and other external characters proved that it belongs to *christophi*, and is specifically perfectly distinct from *demotellus* type and two σ with no locality labels. It is very likely that the type of *demotellus* and two other σ come from one locality as having similar labels and way of mounting. Finally my recent study of some $\sigma\sigma$ of *idalis* from the collection of the American Museum of Natural History has thrown some more light on this problem. I have stated without doubt that some fresh $\sigma\sigma$ of *idalis* have the transverse lines in the fore wing identical with those in the type of *demotellus*. It is of much importance to note that such yellow lines on the grey background do not appear in any other *Chilo*. A comparison of the structure of the face and the genitalia of *idalis* and the two *demotellus* proved identity of both species. I am much obliged to Dr A. B. Klots with whom I have had a discussion on the problem of the synonymy of *idalis*.

C. fernaldalis was described from three σ syntypes of *idalis*. Dyar & Heinrich in the description of *fernalldalis* stated that ocelli are absent in *idalis*, but they are present in *fernalldalis*. In fact, the type and the paratypes of *fernalldalis* have small ocelli. The female of *idalis* has vestigial ocelli and this was probably overlooked by Dyar & Heinrich. According to opinion of Dr. A. B. Klots and on the evidence

of the variation of other *Chilo*, *fernaldalis* is conspecific with *idalis*. Consequently I consider both *idalis* and *fernaldalis* as junior synonyms of *demotellus*.

This species externally resembles somewhat *phragmitellus*, but is very different in the genitalia. In addition, *phragmitellus* has a distinct ventral ridge of the face, which is absent in *demotellus*. The ranges of the two species do not overlap.

Type material examined. *demotellus*. Holotype ♂. U.S.A. '252 ; Type', abdomen missing, in BM(NH).

idalis. Lectotype ♀ (selected by Dyar & Heinrich, 1927 : 40). 'New Jersey ; *Diatraea idalis* Fern. type ; Fernald collection', GS-28. Nov. 25 Me No. 2, in United States National Museum, Washington, D.C., U.S.A.

fernaldalis. Holotype ♂. '[Georgia] Ga (A. Oemler collector) ; *Diatraea idalis* Fern. ♂ ; Type No. 29437 U.S.N.M.', GS-21 Oct. 1925 C.H. no. 2, in United States National Museum, Washington, D.C.

Paratypes (*fernaldalis*) : 2 ♂, Georgia, in United States National Museum, Washington, D.C.

Other material. U.S.A., New York : Long Island, 1 ♂, 10.vii, in American Museum of Natural History, New York, U.S.A. ; Georgia : Brunswick, Glenn County, 1 ♀, 29.v., in American Museum of Natural History, New York ; Florida : Pensacole, 1 ♀, in American Museum of Natural History, New York ; no locality, probably U.S.A., 2 ♂, in BM(NH).

Chilo plejadellus Zincken

(Pl. 5, fig. 6 ; Text-figs 109, 111)

Chilo plejadellus Zincken, 1821 : 251.

Jartheza sabulifera Walker, 1863 : 185 [syn. Fernald, 1896 : 78].

Crambus plejadellus (Zincken) Zeller, 1863 : 26.

Diphryx prolatella Grote, 1882 : 273 [syn. Fernald, 1896 : 78].

Chilo oryzeellus Riley, 1882 : 135, pl. 7, fig. 1 [syn. Fernald, 1896 : 78].

Chilo plejadellus Zincken ; Fernald, 1896 : 78, pl. 5, figs 10, 11 [adults], text-fig. 3 [adult, larva, pupa].

Ocellus well developed. Face strongly protruding forward beyond eye, conical, with distinct point ; ventral ridge absent. Labial palpus 4 times as long as diameter of eye. Fore wing : length 9.0–15.0 mm ; R_1 free ; ground-colour dull yellow, variably dusted with brown scales ; median line with some lustrous golden brown scales ; subterminal line formed by series of lustrous metallic, golden scales ; terminal dots distinct ; fringes strongly shiny golden, in some specimens darker than ground-colour. Hind wing white.

♂ genitalia (Text-fig. 109) : valva greatly elongate with apex rounded ; pars basalis absent ; arms of juxta-plate equally long, each with subapical tooth ; aedeagus with long, hairy, apically pointed, ventral arm ; bulbous basal process small ; cornuti absent.

♀ genitalia (Text-fig. 111) : ostial pouch well demarcated from ductus bursae, heavily sclerotized, about twice as broad as ductus bursae ; the latter with heavily sclerotized elongate patch inside ; one very distinct, narrow, elongate signum (almost as long as half length of corpus bursae).

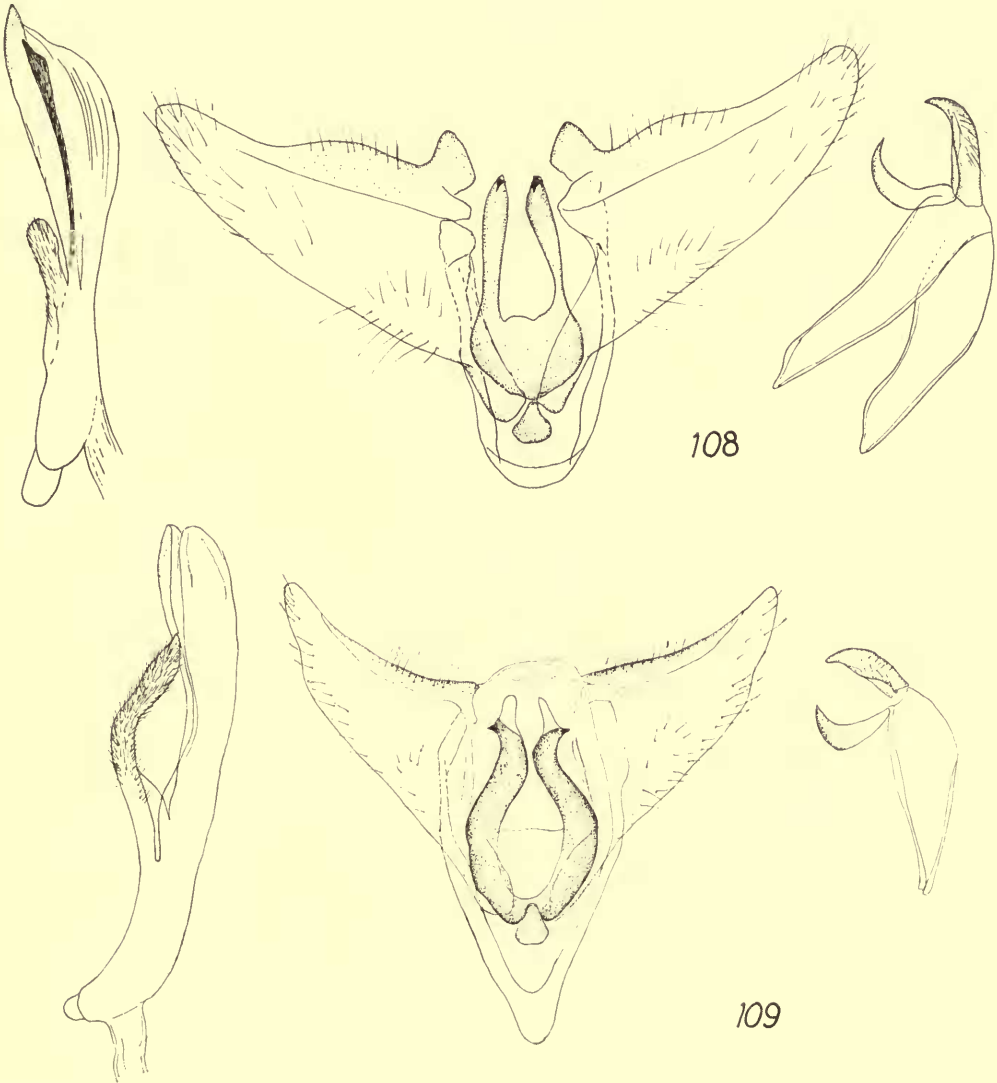
Riley (1882) gave an account of the biology of this species. The larva was found to be a stem-borer of rice. The adults are on the wing in August until the beginning of September.

Distribution. CANADA : Ontario and Quebec ; U.S.A.: Pennsylvania, Georgia, Louisiana and Wisconsin.

The type of *plejadellus*, Savannah, Georgia, U.S.A.; is lost.

Type material examined. *sabulifera*. Holotype ♂. '39.I.19.1388 ; *sabulifera* m.', GS-7031-BM, in BM(NH).

prolatella. Holotype ♀. ' *Diphryx prolatella* G. ; [Wisconsin] Wis ; L ', abdomen missing, in BM(NH).



FIGS 108-109. *Chilo*, ♂ genitalia. 108, *demotellus*, U.S.A., Georgia, paralectotype of *idalis* (holotype of *fernaldalis*). 109, *plejadellus*, Canada, Quebec.

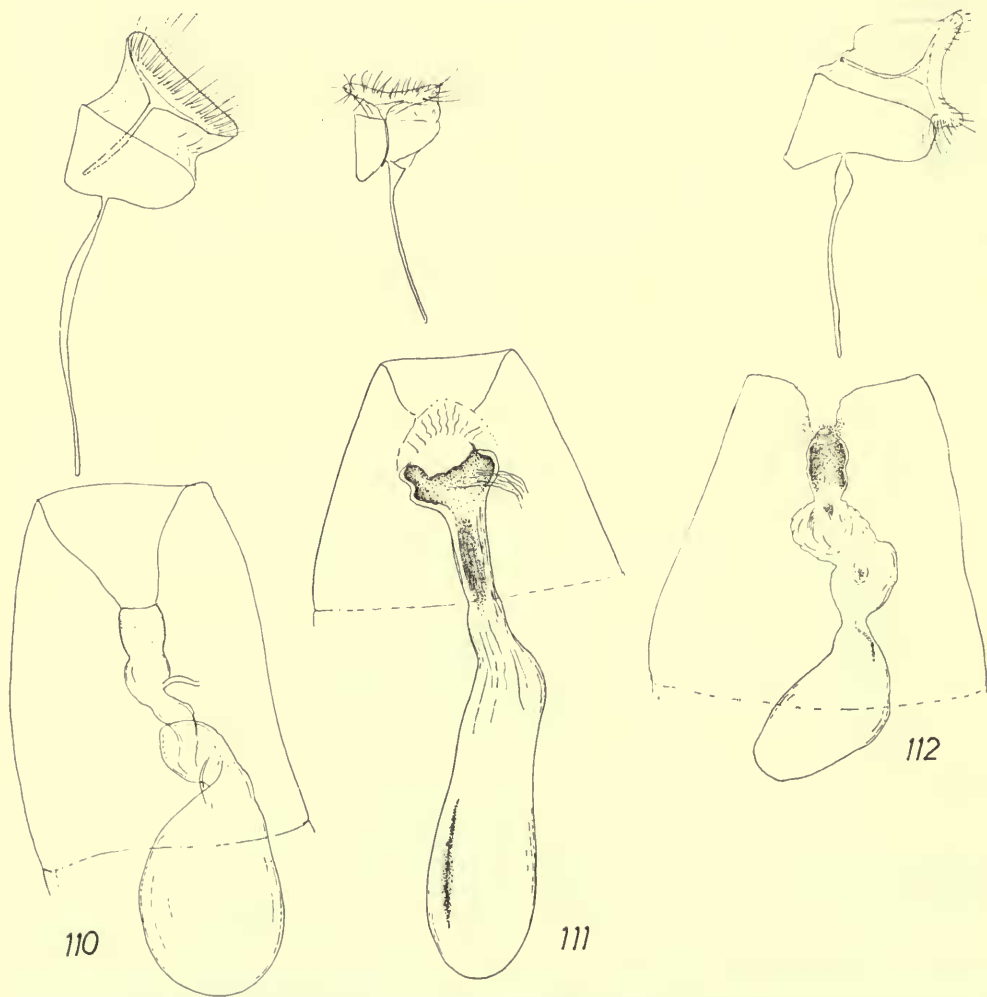
oryzeellus. Holotype ♂. 'Borer in stem of rice. Aug. 25-81; *Chilo oryzeellus* Riley type; Type No. 3740 U.S.N.M.', in United States National Museum, Washington, D.C.

Other material. CANADA: Trenton, Ontario, 2 ♂, 1 ♀, in Canadian National Collection, Ottawa, Ont., Canada; Quebec, 1 ♂, in author's coll.; U.S.A.: 1 ♂, 1 ♀, in BM(NH).

***Chilo erianthalis* Capps**

(Text-figs 112, 113)

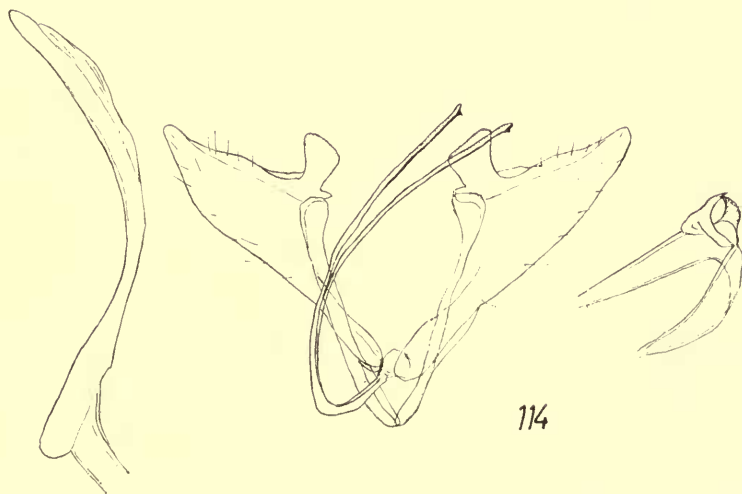
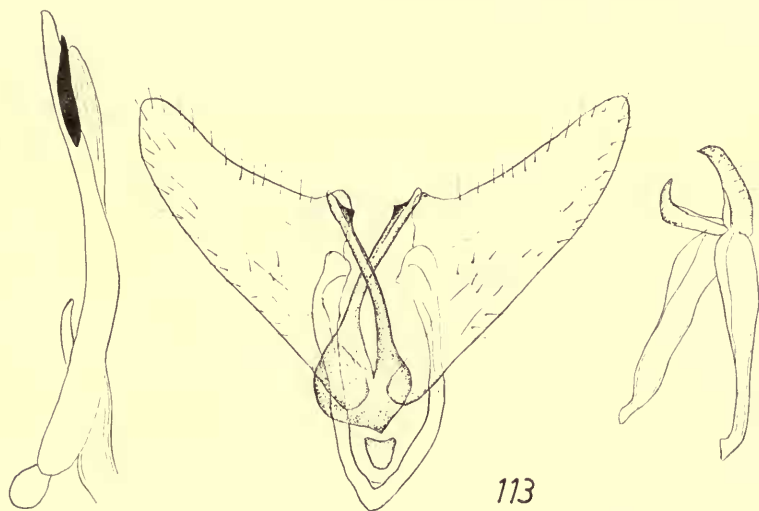
Chilo erianthalis Capps, 1963: 31, figs 1 [adult], 2 [♀ genitalia], 3, 3a [♂ genitalia].



FIGS 110-112. *Chilo*, ♀ genitalia. 110, *demotellus*, U.S.A., New Jersey, lectotype of *idalis*. 111, *plejadellus*, Canada, Ontario. 112, *erianthalis*, U.S.A., Louisiana, paratype.

Ocellus fully developed. Face strongly protruding forward beyond eye, conical with distinct corneous point; ventral ridge vestigial. Labial palpus about 3.5 times as long as diameter of eye. Fore wing: length 11.0–13.0 mm; R_1 free; ground-colour dull brown with very slight violet reddish hue, heavily dusted with fuscous; veins and intervenular spaces edges with light beige, giving the wing a lined appearance; subterminal line very close to termen, slightly dentate in costal portion, consisting of series of silvery, metallicly shiny scales; median line formed by some patches of metallicly cupreous scales; terminal dots distinct; fringes shiny. Hind wing grey-beige.

♂ genitalia (Text-fig. 113): pars basalis vestigial; arms of juxta-plate somewhat longer and thinner than in *plejadellus*; aedeagus with distinct, bulbous, basal projection; ventral projection vestigial, ending well before middle of aedeagus; one large cornutus.



FIGS 113–114. *Chilo*, ♂ genitalia. 113, *erianthalis*, U.S.A., Florida, 114, *chiriquitensis*, Mexico, Yucatan.

♀ genitalia (Text-fig. 112) : seventh sternum without heavily sclerotized plate ; ostial pouch moderately sclerotized ; ductus bursae shorter than corpus bursae, constricted near middle ; signum slightly scobinate situated near mouth of corpus bursae.

Larva feeds on *Erianthus*.

Distribution. U.S.A. : Louisiana and Florida.

Type material examined. Holotype ♂. '[Louisiana] Host *Erianthus*, loc. Port Blarre (La.), Jan. 1, 61 ♂, R. A. Agarwal ; Type No. 66663 U.S.N.M.', GS-15144-H. W. Capps.

Paratypes. 4 ♀, same locality, one GS-15145-H. W. Capps ; all in United States National Museum, Washington, D.C., U.S.A.

Other material. U.S.A. : Myrtle Grove, Florida, 1 ♀, 5.v., in American Museum of Natural History, New York, U.S.A. ; Oneco, Manatee County, Florida, 4 ♂, iii, in coll. Prof. J. G. Franclemont, Ithaca, N.Y., U.S.A. and in author's coll.

Chilo chiriquitensis (Zeller)

(Pl. 2, fig. 1 ; Text-figs 114-118)

Eromene chiriquitensis Zeller, 1877 : 70, pl. 1, fig. 25.

Silveria adelphilia Dyar, 1925 : 11 [syn. Dyar & Heinrich, 1927 : 32].

Silveria hexhex Dyar, 1925 : 11 [syn. Bleszynski, 1967 : 92].

Silveria chiriquitensis (Zeller) Dyar & Heinrich, 1927 : 31, figs 43 [♀ genitalia], 44 [♂ genitalia].

Silveria hexhex Dyar ; Dyar & Heinrich, 1927 : 31, fig. 45 [♀ genitalia].

Chilo chiriquitensis (Zeller) Bleszynski, 1962b : 117, pl. 13, fig. 5 [adult].

Chilo chiriquitensis (Zeller) ; Bleszynski, 1967 : 92, 100.

Ocellus well developed. Labial palpus 2.5 (♂) to 3.0 (♀) times as long as diameter of eye. Face broadly rounded ; corneous point and ventral ridge both absent. Fore wing : length 6.5-8.5 mm ; R_1 confluent with Sc ; ground-colour dull white, dusted with dark brown scales ; discal dot absent ; median line very distinct, almost perpendicular to costa, uniform from costa to termen, metallically shiny, silvery, edged with an equally distinct, but broader, ochreous line distally ; subterminal line concolorous with medial line, also very distinct, broadly ex-curved, close to termen, edged at either side with ochreous ; terminal dots very distinct ; fringes shiny, with golden basal stripe. Hind wing whitish.

♂ genitalia (Text-fig. 114) : pars basalis very distinct, trapezoidal ; juxta-plate with two strongly curved, very long, thin, equally long arms, each of these armed with apical strengthening terminated by a little tooth ; aedeagus strongly angulate, much longer than valva plus saccus, thin ; cornuti absent ; ventral arm and basal projection absent.

♀ genitalia (Text-figs 115-118) : ductus bursae proportionately long and broad ; signum absent ; genitalia variable.

Distribution. Mexico, Colima, Yucatan, Sinaloa ; Panama ; Guatemala.

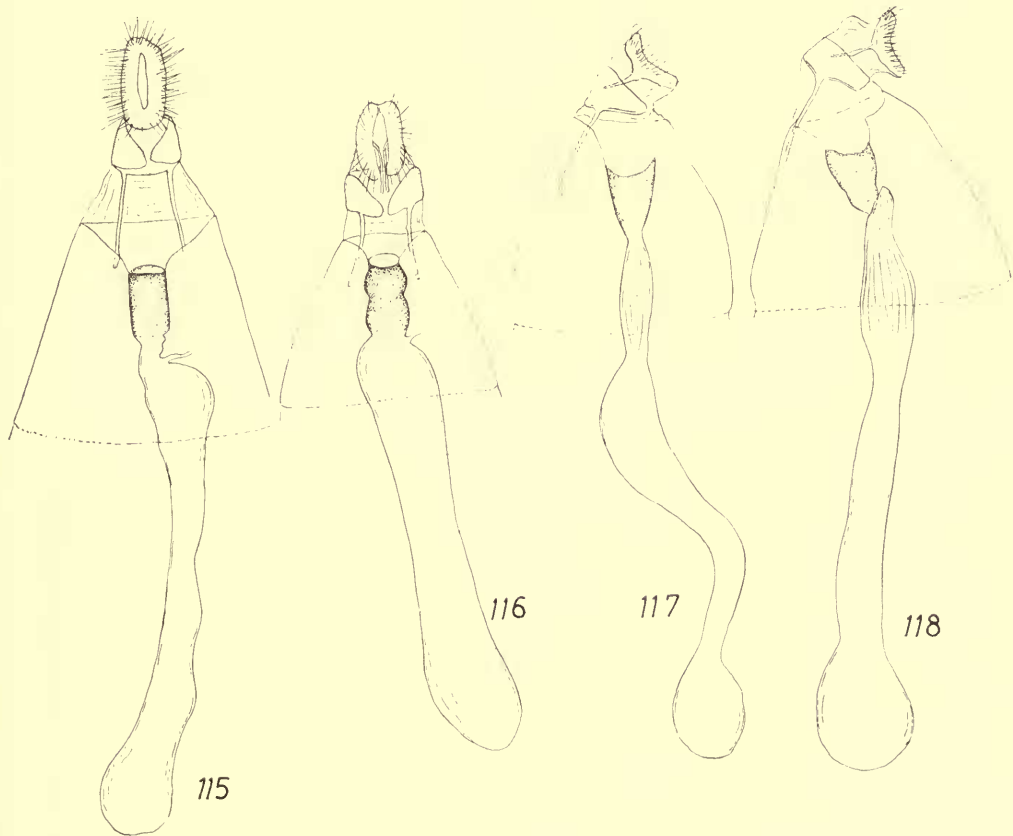
Dyar and Heinrich (1927 : 32) stated that *hexhex* differs from *chiriquitensis* in the differently shaped ductus bursae and the black irroration along the veins of the fore wing, but those characters have no diagnostic value as they are subject to individual variation (confirmed by Dr A. B. Klots, in litt.).

Type material examined. *chiriquitensis*. Holotype ♀. 'Panama *Eromene chiriquitensis* Z. ; 897 ; Chiriqui Ribbe ; Origin. ; Type', GS-598-SB, in Institut f. Spezielle Zoologie, Berlin.

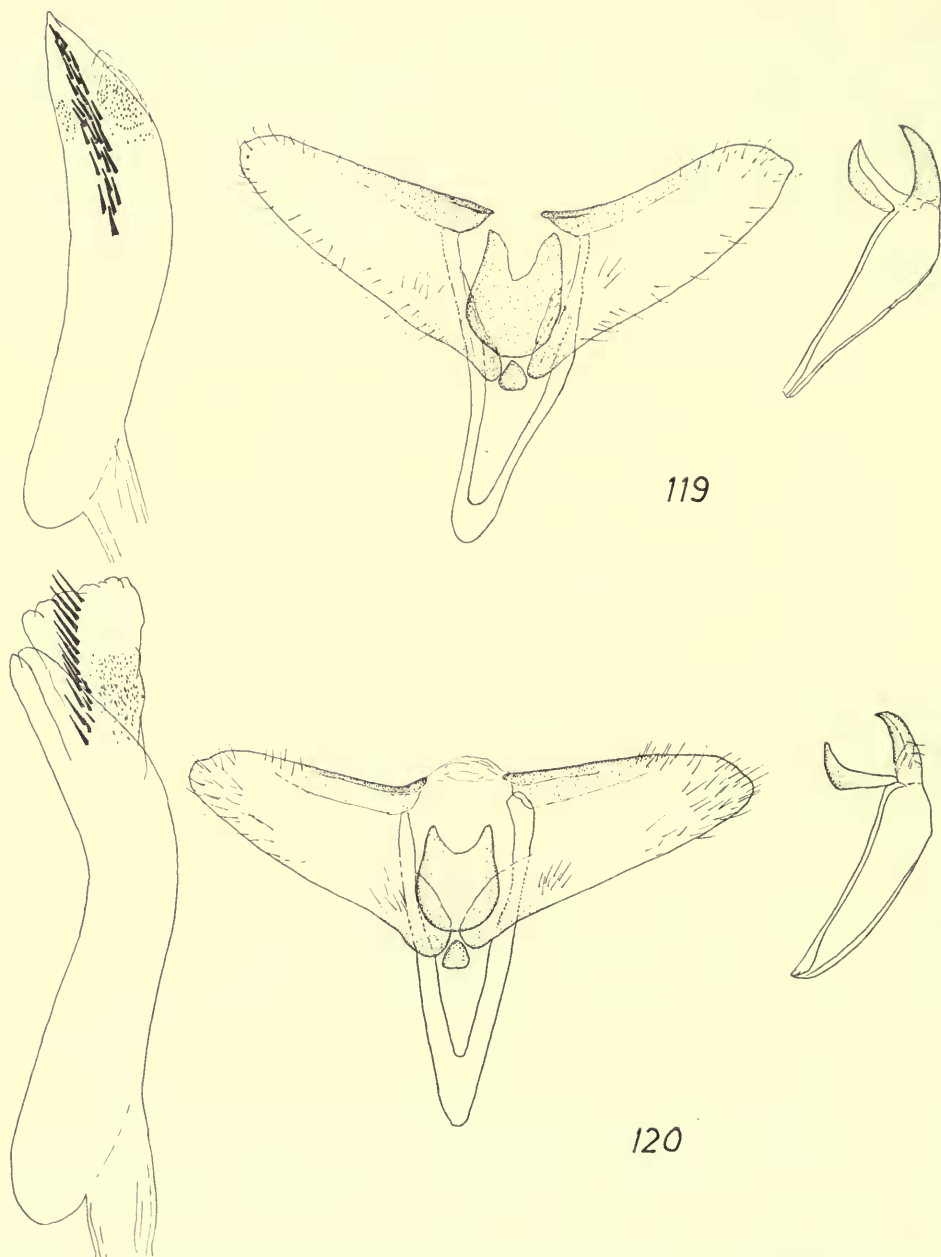
adelphilia. Holotype ♂. 'Mexico, Colima Mex. ; July 1923 ; R. Müller collector ; 14570 ; Type No. 27508 U.S.N.M. ; ♂ genitalia slide 15. Jan. 1926 Me No. 3 ; *Silveria adelphilia* Dyar', in United States National Museum, Washington, D.C., U.S.A.

hexhex. LECTOTYPE (present designation) ♀. 'Mexico, Colima Mex. ; July 1293 ; R. Müller collector ; Type No. 27506 U.S.N.M. ; ♀ genitalia slide 15. Jan. 1926 ME No. 7 ; *Silveria hexhex* Dyar' ; paralectotype : Colima, Mexico, 1 ♀ ; both in United States National Museum, Washington, D.C., U.S.A.

Other material. MEXICO : Sinaloa, Venadio, 7 ♀, in United States National Museum, Washington, D.C., U.S.A. ; Yucatan, Chichen Itza, 1 ♂, 18.vi.1954, in coll. A. B. Klots, New York, U.S.A. ; 1 ♀, in author's coll. ; GUATEMALA : 1 ♀, in author's coll.



FIGS 115-118. *Chilo chiriquitensis*, ♀ genitalia. 115, Mexico, Colima, paratype of *hexhex*. 116, Mexico, Venadio. 117, Mexico, Campecha. 118, Mexico, Yucatan.



FIGS 119-120. *Chilo sacchariphagus*, ♂ genitalia. 119, *sacchariphagus sacchariphagus*, Madagascar. 120, *sacchariphagus sacchariphagus*, Philippines, Luzon.

***Chilo sacchariphagus sacchariphagus* (Bojer)**

(Text-figs 119-121, 125, 126)

Proceras sacchariphagus Bojer, 1856. [Pagination un-numbered.]

Borer saccharellus Guenée, 1862. [Pagination un-numbered.] [Syn. Tams, 1942 : 67.]



FIGS 121-122. *Chilo sacchariphagus*, ♂ genitalia. 121, *sacchariphagus sacchariphagus*, Java, lectotype of *striatalis*. 122, *sacchariphagus indicus*, India.

Chilo mauriciellus Walker, 1863 : 141. [syn. Tams, 1942 : 67].

Chilo venosatus Walker, 1863 : 144. **Syn. n.**

Diatraea striatalis Snellen, 1890 : 98, pl. 2, figs 1-4. [syn. Hampson, 1896b : 953].

Diatraea striatalis Snellen ; Snellen, 1891 : 349, pl. 19, figs 1-4.

Diatraea mauriciella (Walker) Hampson, 1896b : 953.

Diatraea venosata (Walker) Hampson, 1896b : 954.

Diatraea mauriciella (Walker) ; Vinson, 1941 : 148.

Proceras sacchariphagus Bojer ; Tams, 1942 : 67.

Diatraea mauriciella (Walker) ; Vinson, 1942 : 39.

Proceras sacchariphagus Bojer ; Kapur, 1950 : 412, pl. 6, figs 2, 4, 9 [♂ genitalia], 11 [♀ genitalia].

Proceras venosatus (Bojer) Kapur, 1950 : 413 [in part], pl. 6, figs 1, 5, 8 [♂ genitalia], [nec figs 6 and 12, which are referable to *sacchariphagus stramineellus*].

Proceras sacchariphagus Bojer ; Kalshoven, 1950 : 411, figs 232 [larva], 234 [pupa].

Proceras venosatus Bojer ; Bleszynski, 1962a : 9 [in part] [nec fig. of ♀ genitalia, which is referable to *sacchariphagus stramineellus*].

Chilo sacchariphagus (Bojer) Bleszynski, 1966 : 494.

Chilo sacchariphagus (Bojer) ; Bleszynski, 1969 : 18, figs 7 [♂ genitalia], 40 [♀ genitalia], 70 c [imago], 70 d [larva].

Ocellus reduced. Face rounded, not protruding forward beyond eye ; corneous point and ventral ridge both absent. Labial palpus 3 (♂) to 4 (♀) times as long as diameter of eye. Fore wing : R_1 confluent with Sc ; length 12.0-18.0 mm, maximum width 4.5-6.0 mm ; apex acute ; ground-colour dull light brown ; veins and interneural spaces outlined with whitish beige ; discal dot distinct, often double ; terminal dots present ; transverse lines absent ; fringes slightly glossy, concolorous or lighter than the ground-colour. Hind wing dirty white to light brown in ♂, silky whitish in ♀.

♂ genitalia (Text-figs 119-121) : valva slightly tapering to a rounded apex, which is very slightly concave ; pars basalis absent ; juxta-plate short, broad, deeply notched, arms tapered without teeth ; saccus V-shaped ; aedeagus variable in width ; ventral arm and basal process both absent ; row of strong tapering cornuti present and subapical large patch of scobinations absent.

♀ genitalia (Text-figs 125, 126) : Ostial pouch rather well demarcated from ductus bursae, heavily sclerotized, broad ; ductus bursae with heavily sclerotized longitudinal ribs ; corpus bursae greatly elongate, longer than ductus bursae, with large area of scobinations.

This species is a major pest of sugar-cane in Indonesia, Mauritius, India (ssp. *indicus*), Formosa and China (ssp. *stramineellus*). Most data on the early stages and biology are referable to ssp. *indicus* and ssp. *stramineellus*.

Distribution. Indonesia, Borneo, Java, Bali, Sumatra, Celebes ; Singapore ; Malaya ; Philippines ; Madagascar ; Mauritius ; Reunion. The populations in Madagascar, Reunion and Mauritius have probably been introduced by man.

The identity of this species has for a long time been uncertain as several names are involved and the variation in the genitalia of both sexes is considerable. Until 1942 the species was known as *Diatraea mauriciella* (Walk.). Hampson (1896b : 953) considered it distinct from *Diatraea striatalis* Snell., which he cited as a synonym of the *venosatus* Walk. Vinson, in 1942, synonymized *striatalis* with *mauriciella*, and he regarded *venosatus* from India as a distinct species. In 1942, Tams revived the name *Proceras sacchariphagus* Bojer for the sugar-cane borer from Mauritius. Fletcher & Ghosh (1921), Fletcher (1928) and Gupta (1940), Isaac & Rao (1941) and Isaac & Venkatraman (1941) used the name *Diatraea venosata* for the Indian population, which has subsequently been described by Kapur (1950) as *Proceras indicus*.

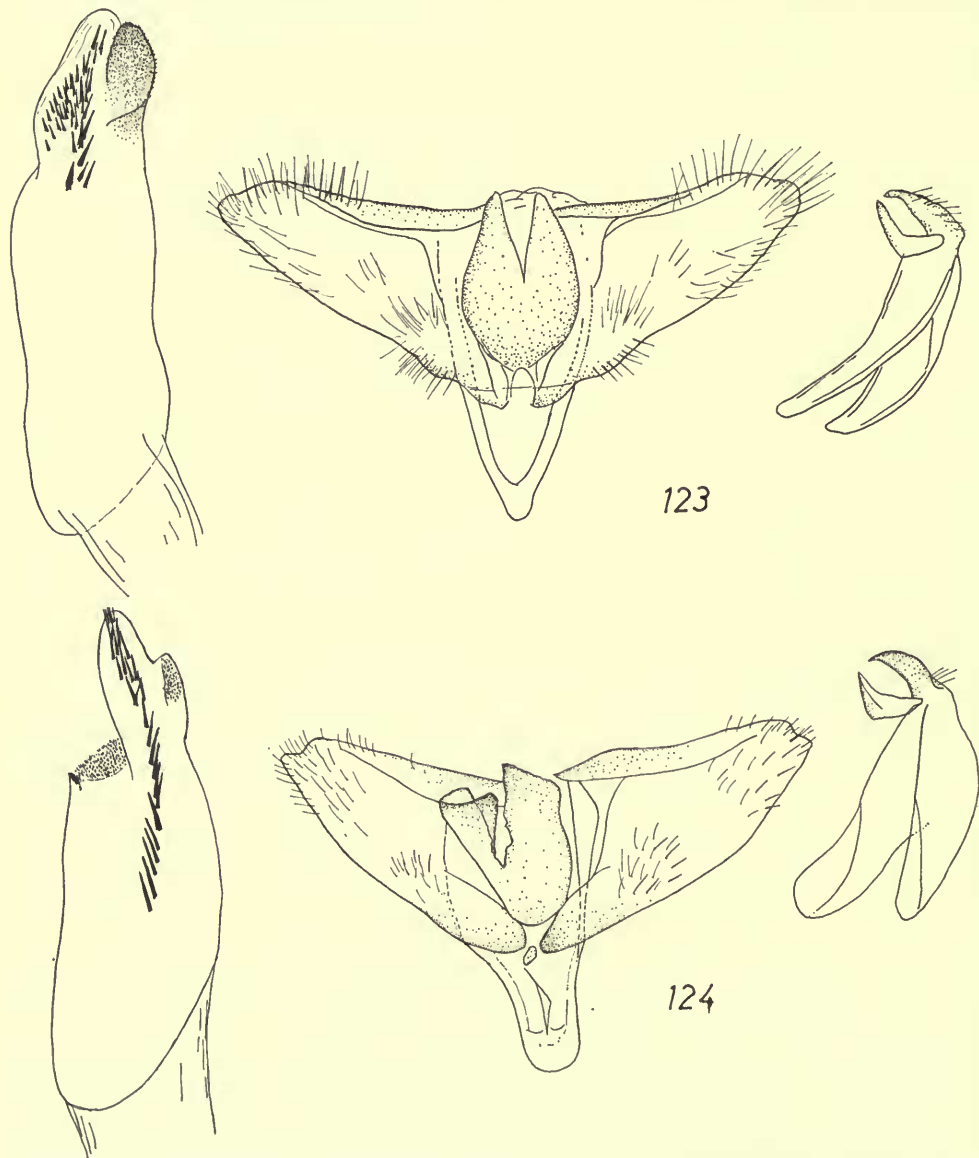
Kalshoven (1950) mentioned correctly this species from Indonesia as *Proceras sacchariphagus*. The present author (1962a : 9) sank *Argyria stramineella* Car. under *Proceras venosatus* (Walk.), but this was incorrect, as *stramineellus* is a distinct subspecies of *sacchariphagus*. In 1965, the present author recorded *Proceras venosatum* from China but the diagnosis and figures of the genitalia are of ssp. *stramineellus*. In 1966, I transferred *sacchariphagus*, *venosatus* and *indicus* to *Chilo* and sank *Proceras* under *Chilo*. After a study of the genitalia of a series of specimens from China, Formosa, Philippines, Indonesia, Malaya, Madagascar, India, Reunion and Mauritius I concluded that:

All populations belong either to one widely spread species, or to several phylogenetically very young species. The differences in the genitalia of the populations of *sacchariphagus*, *stramineellus* and *indicus* are rather slight, and considerable individual variation is present. The populations from China and Formosa agree in genitalia (except for slightly differently shaped saccus in the ♂ genitalia) and differ from those from Indonesia and the Philippines. In the ♂ genitalia of the specimens from China and Formosa the aedeagus is wider and has an apical patch of small cornuti and scobinations; moreover the saccus in the specimens from China is truncate; in the ♀ genitalia the ductus bursae consists a heavily sclerotized, elongate patch. The aedeagus in the specimens from Indonesia and Philippines is thinner and lacks the apical scobinations; in the ♀ genitalia the ductus bursae lacks the sclerite, but shows distinct longitudinal ribbing absent in the specimens from China and Formosa. The genitalia of the holotype of *Diatraea striatalis* (Java) agree with those in the specimens from Sumatra and other localities in Indonesia (except aedeagus which is slightly broader), and I consider *striatalis* as conspecific with *venosatus*, the holotype of which (from Borneo, Sarawak) has no abdomen. The opinion that *venosatus* occurs in China has no logical basis. The synonymy of *sacchariphagus*, *mauriciella* and *striatalis* seems to be correct, and accordingly, *venosatus* is here sunk under *sacchariphagus*. The species was most probably introduced to Madagascar, Mauritius and Reunion. It is of interest to note that the genitalic differences between populations from Madagascar, Reunion, Mauritius and from Indonesia are weaker, than between Indonesian specimens and those from China, Formosa, or from India. The specimens from the Philippines are slightly different in the genitalia of both sexes from the Indonesian specimens, but I consider them all as representatives of *sacchariphagus sacchariphagus*. It is also important to note that the ranges of the three forms do not overlap, indicating that they probably belong to one species.

It has also to be noted that very slight differences between the female genitalia in the specimens from Madagascar and from Mauritius were found. Then, the ductus bursae in the ♀♀ from the Philippines is slightly more constricted than in the ♀♀ from Indonesia and Madagascar, Mauritius and Reunion.

The isolation of the individual populations has resulted in slight genitalic differences, while the external appearance of the moths was unchanged. Under such circumstances, in spite of existing constant genitalic differences, the distinctness of *stramineellus* and *indicus* might seem rather doubtful. In *indicus* the aedeagus is broader than in *sacchariphagus*, is terminated in a heavily sclerotized and minutely

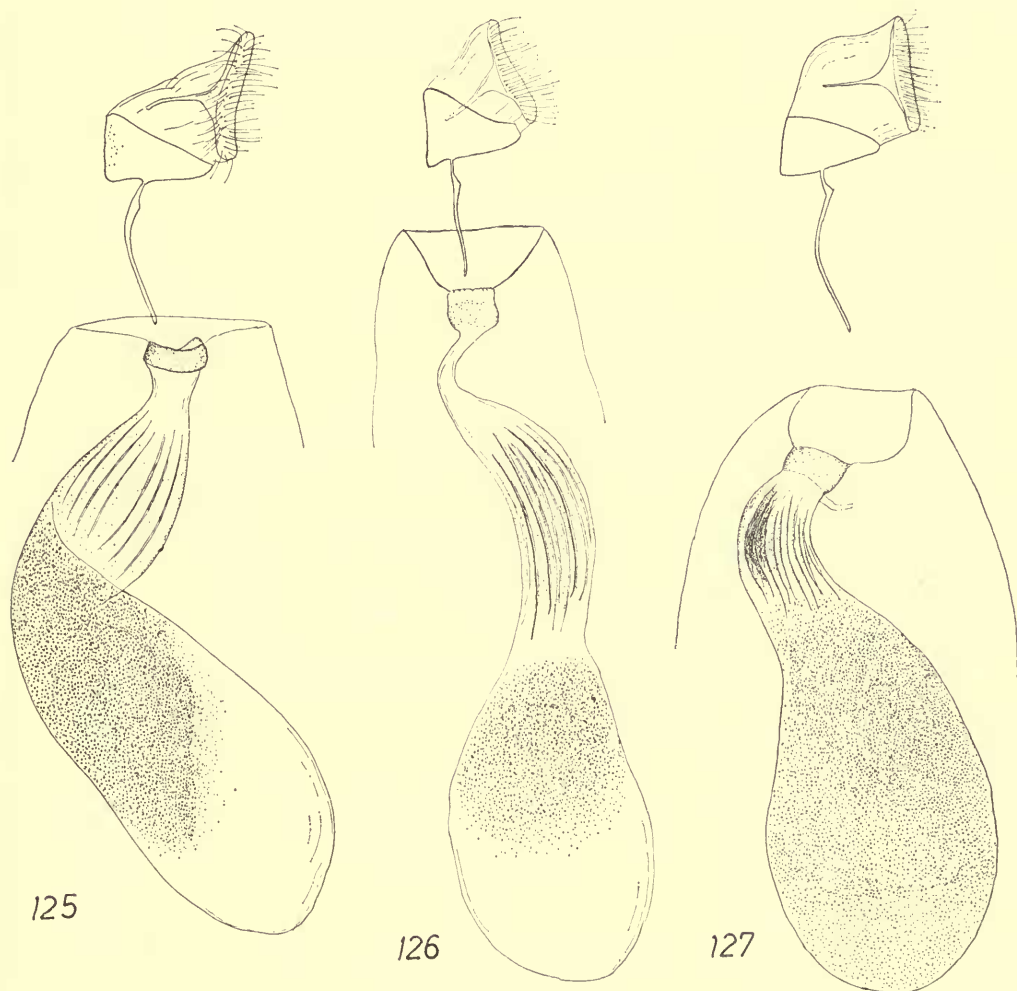
spined oval, elongate projection, and the cornuti are arranged in two distinct elongate patches. *C. sacchariphagus sacchariphagus* lacks the terminal projection and the cornuti are arranged in one patch. In *C. sacchariphagus stramineellus* the aedeagus is also thick, but the terminal projection is weaker. So far I have not found any constant differences between the female genitalia of *sacchariphagus sacchariphagus* and *sacchariphagus indicus*, except the ductus bursae seems to be



FIGS 123-124. *Chilo sacchariphagus* ♂ genitalia. 123, *sacchariphagus indicus*, India.
124, *sacchariphagus stramineellus*, China.

shorter in *sacchariphagus indicus* and the corpus bursae more heavily scobinate ; however, in view of the variation of the female genitalia of *sacchariphagus*, and the small number of examined ♀♀ of *sacchariphagus indicus*, those differences can not be considered as diagnostic. It is of much importance to note that from some localities especially in Indonesia, only single specimens are available for study which sometimes bring more confusion than clarification to the matter.

Type material examined. *sacchariphagus sacchariphagus*. NEOTYPE ♂ (present designation). (Detailed text of the labels received from P. L. Viette, Paris) : '*Diatraea striatalis* Snell. Île Maurice. De la canne à sucre ; coll. E. L. Ragonot, Museum



FIGS 125-127. *Chilo sacchariphagus* ♀ genitalia. 125, *sacchariphagus sacchariphagus*, West Celebes. 126, *sacchariphagus sacchariphagus*, Philippines, Luzon. 127, *sacchariphagus indicus*, India.

Paris ; GS-4904 ♂ *Chilo sacchariphagus* Boj. det. Bleszynski '65', in Muséum National d'Histoire Naturelle, Paris.

striatalis. Lectotype ♂ (selected by Kapur, 1950 : 413). [Indonesia] 'Java Tegal ♂ Lucay ; *Diatraea striatalis* Snellen Lectotype made by : A. P. Kapur 1949', GS-4514-SB, in Museum van Natuurlijke Historie, Leiden.

Other material. MALAYA : Perak, 1 ♂, in BM(NH) ; Singapore, 1 ♂, in BM(NH) ; INDONESIA : West Sumatra, 1 ♂, in BM(NH) ; Celebes, 1 ♂, in author's coll. ; PHILIPPINES : Luzon, Benguet and Passay Rizal, 6 ex., v and xii, in BM(NH) and in author's coll. ; Luzon, Los Banos, 2 ♂, in United States National Museum, Washington, D.C., U.S.A. ; MAURITIUS : 2 ♂, in BM(NH) 4 ex. in author's coll. ; REUNION : 1 ♂, in Muséum National d'Histoire Naturelle, Paris ; MADAGASCAR : 6 ex., in Muséum National d'Histoire Naturelle, Paris, and in author's coll.

***Chilo sacchariphagus stramineellus* (Caradja) stat. n., nom. rev.**

(Pl. 4, fig. 5 ; Text-figs 124, 128-130)

Argyria stramineella Caradja, 1926 : 168.

Diatraea venosata (Walker) ; Shibuya, 1928b : 51, pl. 4, fig. 28.

Proceras venosatus (Walker) ; Kapur, 1950 : 413 [in part], pl. 6, figs 6, 10 [♂ genitalia], ? fig. 12 [♂ genitalia].

Proceras venosatus (Walker) ; Bleszynski, 1962a : 9 [in part], pl. 6, fig. 24 [♂ genitalia].

Proceras venosatum (Walker) ; Bleszynski, 1965 : 123 [in part], pl. 5, fig. 65 [adult], pl. 43, fig. 65 [♂ genitalia], pl. 94, fig. 65 [♀ genitalia].

Chilo venosatus Walker ; Bleszynski, 1969 : 16 [in part], figs 5 [♂ genitalia], 38 [♀ genitalia].

Externally strikingly similar to *sacchariphagus sacchariphagus*.

♂ genitalia (Text-figs 124) : aedeagus broader than in typical subspecies, with apical scobinations which are absent in *sacchariphagus sacchariphagus*. In ♂♂ from China the saccus is truncate, but in those from Formosa it is V-shaped, similar to typical subspecies. One row of cornuti.

♀ genitalia (Text-figs 128-130) : ductus bursae decidedly twisted with an elongate, distinct sclerite lacking in typical subspecies ; ostial pouch always very broad.

Takano (1934, 1937, 1940) and Takahashi (1938) gave brief accounts of the biology of this subspecies in Formosa.

Distribution. China: Shantung, Kiangsu, Fokien, Kwangtung ; Formosa.

Type material examined. Holotype ♀. '[China] Tsingtau', GS-1692-SB, in Muzeul Grigorie Antipa, Bucharest.

Other material. CHINA : Shantung, Tsinan, 1 ♀, in BM(NH) ; I-Shang, 1 ♀, in BM(NH) ; Shantung, Taishan, 1550 m, 8 ex., in Museum A. Koenig, Bonn and in author's coll. ; Pekin, 1 ♂, in author's coll. ; FORMOSA : 8 ex., in BM(NH) and in author's coll.

***Chilo sacchariphagus indicus* (Kapur) stat. n.**

(Text-figs 122, 123, 127)

Diatraea venosata (Walker) ; Fletcher & Ghosh, 1920 : 388.

Diatraea venosata (Walker) ; Gupta, 1940 : 803, fig. 4 [larva], pl. 36, figs 3 a, b [wing-neuration], pl. 37, figs 5, 6 [♂ genitalia].

Diatraea venosata (Walker) ; Isaac & Rao, 1941 : 800, pls 42, 43, 45 [larva].

Diatraea venosata (Walker) ; Isaac & Venkatraman, 1941 : 808, pl. 46, fig. 5, pl. 48, figs 5-8 [pupa].

Proceras indicus Kapur, 1950 : 414, pl. 6, figs 3, 7 [♂ genitalia], 13 [♀ genitalia].

Chilo indicus (Kapur) Bleszynski, 1956 : 493.

Chilo indicus (Kapur) ; Bleszynski, 1969 : 6, figs 6 [♂ genitalia], 39 [♀ genitalia].

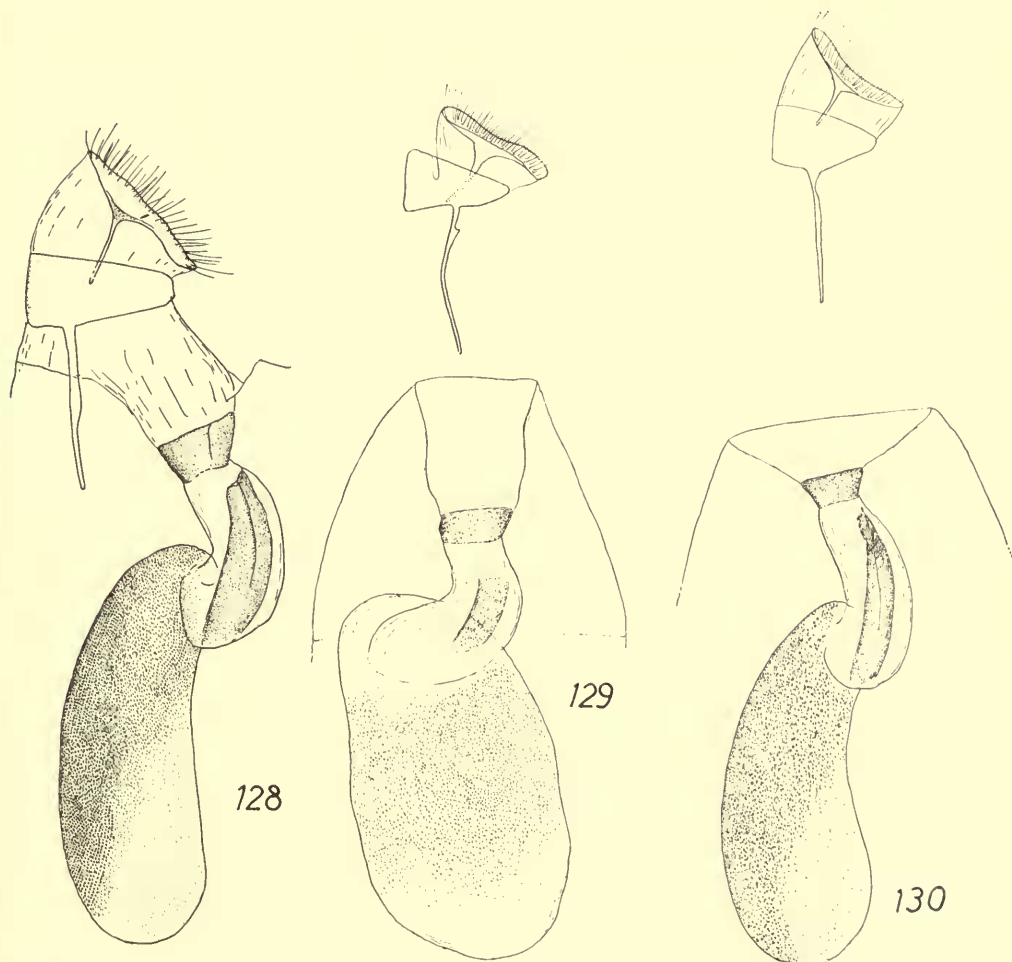
Externally strikingly similar to *sacchariphagus sacchariphagus*.

♂ genitalia (Text-figs 122, 123) : aedeagus broader than in *sacchariphagus sacchariphagus* and terminated in oval, elongate, heavily sclerotized projection ; cornuti arranged in two distinct patches.

♀ genitalia (Text-fig. 127) : similar to those in *sacchariphagus sacchariphagus*.

This subspecies is reported also to be a pest of sugar-cane.

Distribution. India : Assam, Bihar and Madras.



FIGS 128-130. *Chilo sacchariphagus stramineellus* ♀ genitalia. 128, China, holotype.
129, China. 130, China.

According to Kapur, the 8 ♂♀ paratypes are in the collection of the Indian Museum, Calcutta. For full details on the taxonomy of this subspecies see comments under *sacchariphagus sacchariphagus*.

Type material examined. Holotype ♂. 'India Cage No. 4 on Sugar Cane. Pusa Bihar 15.v.14. R. S.', GS-598-BM, in BM(NH).

Paratypes, India, 6 ♂♀, in BM(NH).

Other material. INDIA : 1 ♂, in Canadian National Collection, Ottawa, Ont., Canada.

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